

L 001 ASSEMBLY AND OPERATION INFORMATION

USER'S OWN PAGE NO. 1

R0001 TABLE OF LOG CARDS (ALL LOG CARDS ARE TWO SPACED)

R0002 ASSEMBLY AND OPERATION INFORMATION

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R0004 INTERRUPT TRANSFER ROUTINES

R0005 FIXED-FIXED INTERPRETER SECTION

R0006 BANK 03 INTERPRETER SECTION

R0007 EXECUTIVE

R0008 WAITLIST

R0009 RESTART CONTROL

R0010 501 RESTART TABLES AND ROUTINES

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R0015 IMU COMPENSATION PACKAGE

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R0018 AGC SELF-CHECK

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R0031 IMU PERFORMANCE TESTS 1

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R0033 INFLIGHT ALIGNMENT SUBROUTINES

R0034 KEYRUPT, UPRUPT, FRESH START

R0035 PINBALL GAME BUTTONS AND LIGHTS

R0036 501 MISSION CONTROL PROGRAM

R0037 POWERED FLIGHT SUBROUTINES

R00375 TIME OF FREE-FALL CALCULATIONS

R0038 DUMMY 501 INITIALISATION

R0039 RE-ENTRY CONTROL

R0040 AVERAGE G INTEGRATOR

R0041 VERIFICATION ASSISTANCE PROGRAMS

R0042 SUM-CHECK END OF RECORD MARKS

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P0043 TABLE OF ERROR CODES

R0044 OPTICS SUB-SYSTEM

R0045 00101 ZERO CDU SWITCH ALTERED BEFORE EXPIRATION OF 30 SECOND WAIT
R0046 00102 COMPUTER UNABLE TO ACHIEVE DESIRED OPTICS MODE
R0047 00103 SXT-ON SWITCH TURNED ON WITH OPTICS NOT IN ZERO CDU MODE
R0048 00104 NO VAC AREA AVAILABLE FOR MARKS
R0049 00105 INTERNAL MARKS REQUEST WITH MARK SYSTEM BUSY
R0050 00106 SXT-ON SWITCH NOT IN DESIRED STATE AT MARK TIME OR MARK WITH ALL REQUESTED MARKS ACCEPTED
R0052 00107 MARK ACCEPT WITH MARK SYSTEM NOT IN USE
R0053 00110 MARK ACCEPT WITH ALL REQUESTED MARKS ACCEPTED, OR NO MARKS SINCE INITIALIZATION OR LAST MARK ACCEPT
R0055 IMU SUB-SYSTEM

R0056 00201 CDU ZERO SWITCH ALTERED BEFORE EXPIRATION OF 30 SECOND WAIT
R0057 00202 COMPUTER UNABLE TO ACHIEVE DESIRED MODE
R0058 00203 NO IMU MODE INDICATED TO COMPUTER
R0059 00204 MODE SWITCH WITH TRNSW IN COMPUTER CONTROL, BUT COMPUTER NOT COMMANDING
R0061 GENERAL MISSION PROGRAM ERRORS (ERROR RETURN ON IMUSTALL, ETC.)

R0062 00301 CURTAINS PROGRAM
R0063 PROCEDURAL DIFFICULTY

R0064 00401 DESIRED GIMBAL ANGLES YIELD GIMBAL LOCK (MGA GREATER THAN 60 DEGREES).
R0066 00402 STAR OUT OF FIELD OF VIEW
R0067 00403 STAR OUT OF FIELD OF VIEW
R0068 COMPUTER HARDWARE MALFUNCTIONS

R0069 01101 RUPT2 OCCURRED
R0070 01102 AGC SELF TEST ERROR (Q IN SFALL)
R0071 01103 UNUSED CCS BRANCH EXECUTED
R0072 01104 C-RELAY FAILED DURING C-RELAY TEST
R0073 LIST OVERFLOWS (ALL ABORTS)

R0074 01201 EXECUTIVE OVERFLOW - NO VAC AREAS
R0075 01202 EXECUTIVE OVERFLOW - NO CORE SETS
R0076 01203 WAITLIST OVERFLOW - TOO MANY TASKS
R0077 01204 SLIGHT VARIATION OF 01203
R0078 01205 MASTER CONTROL OVERFLOW - TOO MANY JOBS WAITING
R0079 01206 KEYBOARD + DISPLAY WAITING LINE OVERFLOW
R0080 01207 NO VAC AREA FOR MARKS
R0081 01210 SOMETHING ALREADY WAITING IN IMUSTALL
R0082 INTERPRETER ERRORS

R0083 01301 ARCCOS-ARCSIN INPUT ANGLE TOO LARGE
R0084 01302 SQRT CALLED WITH NEGATIVE ARGUMENT
R0085 DISPLAY ALARMS

R0086 01401 (VG) INCREASING - LOSS OF CONTROL

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R0087 01402 (DELV) TOO LOW - ENGINE NOT ON
R00871 01403 501 ABORT. WILL OVERSHOOT TARGET.
R00872 01404 501 ABORT. PRESENT SMA LESS THAN RE/2
R00873 01405 501 ABORT. COT SQ(GAMMA E) NEGATIVE.
R00874 01406 501 ABORT. FREE-FALL ANGLE EXCEEDS ---
R00875 01407 COMMANDED CDUZ EXCEEDS 60 DEGREES
R00876 01411 TIME TO INCORPORATE AVE G UPDATE ALREADY PAST

R0088 KEYBOARD AND DISPLAY PROGRAM

R0089 01501 KEYBOARD AND DISPLAY ALARM DURING INTERNAL USE (NVSUB). ABORT

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P0090 VERB DEFINITIONS

R0091 REGULAR VERBS

R0092 01 DISPLAY OCTAL COMP 1 (R1)
R0093 02 DISPLAY OCTAL COMP 2 (R1)
R0094 03 DISPLAY OCTAL COMP 3 (R1)
R0095 04 DISPLAY OCTAL COMP 1,2 (R1,R2)
R0096 05 DISPLAY OCTAL COMP 1,2,3 (R1,R2,R3)
R0097 06 DECIMAL DISPLAY
R0098 07 DP DECIMAL DISPLAY (R1,R2)
R0099 10 REQUEST WAITLIST
R0100 11 MONITOR OCT COMP 1 (R1)
R0101 12 MONITOR OCT COMP 2 (R1)
R0102 13 MONITOR OCT COMP 3 (R1)
R0103 14 MONITOR OCT COMP 1,2 (R1)
R0104 15 MONITOR OCT COMP 1,2,3 (R1,R2,R3)
R0105 16 MONITOR DECIMAL
R0106 17 MONITOR DP DECIMAL (R1,R2)
R0107 20 REQUEST EXECUTIVE
R0108 21 LOAD COMP 1 (R1)
R0109 22 LOAD COMP 2 (R2)
R0110 23 LOAD COMP 3 (R3)
R0111 24 LOAD COMP 1,2 (R1,R2)
R0112 25 LOAD COMP 1,2,3 (R1,R2,R3)
R0113 26 SPARE
R0114 27 SPARE
R0115 30 SPARE
R0116 31 BANK DISPLAY
R0117 32 C(R2) INTO R3, C(R1) INTO R2
R0118 33 PROCEED WITHOUT DATA
R0119 34 TERMINATE CURRENT TEST OR LOAD REQUEST
R0120 35 RELEASE DISPLAY SYSTEM
R0121 36 FRESH START
R0122 37 CHANGE MAJOR MODE
R0123 END OF REGULAR VERBS

R0124 EXTENDED VERBS

R0125 40 ZERO (USED WITH NOUN ICDU OR OCDU)
R0126 41 COARSE ALIGN (USED WITH NOUN ICDU OR OCDU)
R0127 42 FINE ALIGN IMU
R0128 43 LOCK IMU
R0129 44 SET IMU TO ATTITUDE CONTROL
R0130 45 SET IMU TO RE-ENTRY CONTROL
R0131 46 RETURN IMU TO COARSE ALIGN
R0132 47 OPTICAL TRACKER ON (NOT IN USE YET)
R0133 50 PLEASE PERFORM

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R0134 51 PLEASE MARK
R0135 52 MARK REJECT (UNTIL BUTTON AVAILABLE)
R0136 53 FREE (USED WITH NOUN ICDU OR OCDU)
R0137 54 PULSE TORQUE GYROS
R0138 55 ALIGN TIME
R0139 56 PERFORM BANKSUM
R0140 57 DO SYSTEM TEST
R0141 60 PREPARE FOR STANDBY
R0142 61 RECOVER FROM STANDBY
R0143 62 ILLEGAL VERB
R0144 63 ILLEGAL VERB
R0145 64 ILLEGAL VERB
R0146 65 ILLEGAL VERB
R0147 66 ILLEGAL VERB
R0148 67 ILLEGAL VERB
R0149 70 ILLEGAL VERB
R0150 71 DO TFFMIN UPDATE
R0151 72 ABORT
R0152 73 ILLEGAL VERB
R0153 74 ILLEGAL VERB
R0154 75 MANUAL I/O FOR FLIGHTS
R0155 76 DO RVT UPDATE
R0156 77 DO L/O TIME UPDATE

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	NORMAL NOUNS	SCALE AND DECIMAL POINT
R0157	00 NOT IN USE	
R0160	01 SPECIFY MACHINE ADDRESS (FRACTIONAL)	(.XXXXX)
R0161	02 SPECIFY MACHINE ADDRESS (WHOLE)	(XXXXX.)
R0162	03 SPECIFY MACHINE ADDRESS (DEGREES)	(XXX.XXDEGREES)
R0163	04 SPECIFY MACHINE ADDRESS (HOURS)	(XXX.XXHOURS)
R0164	05 SPECIFY MACHINE ADDRESS (SECONDS)	(XXX.XXSECONDS)
R0165	06 SPECIFY MACHINE ADDRESS (GYRO DEGREES)	(XX.XXXDEGREES)
R0166	07 SPECIFY MACHINE ADDRESS (Y OPT DEGREES)	(XXX.XXDEG OR XX.XXXDEG)
R0168	10 SPARE	
R0169	11 SPARE	
R0170	12 SPARE	
R0171	13 SPARE	
R0172	14 SPARE	
R0173	15 INCREMENT MACHINE ADDRESS	(OCTAL ONLY)
R0174	16 TIME SECONDS	(XXX.XXSECONDS)
R0175	17 TIME HOURS	(XXX.XXHOURS)
R0176	20 ICDU	(XXX.XXDEGREES)
R0177	21 PIPAS	(XXXXX.PULSES)
R0178	22 NEW ANGLES I	(XXX.XXDEGREES)
R0179	23 DELTA ANGLES I	(XXX.XXDEGREES)
R0180	24 DELTA TIME (SECONDS)	(XXX.XXSECONDS)
R0181	25 CHECKLIST	(XXXXX.)
R0182	26 PRIO/DELAY	(XXXXX.)
R0183	27 SELF TEST ON/OFF SWITCH	(XXXXX.)
R0184	30 STAR NUMBERS	(XXXXX.)
R0185	31 FAILREG, SFAIL, ERCOUNT	(OCTAL ONLY)
R0186	32 DECISION TIME (MIDCOURSE)	(XXX.XXHOURS (INTERNAL UNITS = WEEKS))
R0188	33 EPHEMERIS TIME (MIDCOURSE)	(XXX.XXHOURS (INTERNAL UNITS = WEEKS))
R0190	34 MEASURED QUANTITY (MIDCOURSE)	(XXXX.XKILOMETERS)
R0191	35 ROLL, PITCH, YAW	(XXX.XXDEGREES)
R0192	36 LANDMARK DATA 1	(OCTAL ONLY)
R0193	37 LANDMARK DATA 2	(OCTAL ONLY)
R0194	40 VG FOR 501	(XXXX.X METERS/SEC)
R0195	41 SPARE	
R0196	42 SPARE	
R0197	43 SPARE	
R0198	44 SPARE	
R0199	45 SPARE	
R0200	46 SPARE	
R0201	47 SPARE	
R0202	50 SPARE	
R0203	51 SPARE	
R0204	52 GYRO BIAS DRIFT	(.BBXXXXXXMILLIRAD/SEC)
R0206	53 GYRO INPUT AXIS ACCELERATION DRIFT	(.BBXXXXXX(MILLIRAD/SEC)/(CM/SEC SEC))
R0208	54 GYRO SPIN AXIS ACCELERATION DRIFT	(.BBXXXXXX(MILLIRAD/SEC)/(CM/SEC SEC))
R0210	END OF NORMAL NOUNS	

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R0211	MIXED NOUNS	SCALE AND DECIMAL POINT
R0213	55 OCDU	(XXX.XXDEG, XXX.XXDEG OR XX.XXXDEG)
R0215	56 UNCALLED MARK DATA (OCDU & TIME(SECONDS))	(XXX.XXDEG, XXX.XXDEG OR XX.XXXDEG, XXX.XXSEC)
R0217	57 NEW ANGLES OCDU	(XXX.XXDEG, XXX.XXDEG OR XX.XXXDEG)
R0219	60 IMU MODE STATUS (IN3, WASKSET, OLDERR)	(OCTAL ONLY)
R0220	61 TARGET AZIMUTH AND ELEVATION	(XXX.XXDEG, XX.XXXDEG)
R0222	62 RE-ENTRY VARIABLES	(XXX.XXSEC, XXXXX., XXXXX.)
R0224	63 OCDUX AND TIME	(XXX.XXDEG, XXX.XXSEC)
R0226	64 OCDUY AND TIME	(XXX.XXDEG OR XX.XXXDEG, XXX.XXSEC)
R0228	65 SAMPLED TIME (HOURS AND SECONDS)	(XXX.XXHOURS, XXX.XXSEC)
R0230	(FETCHED IN INTERRUPT)	
R0231	66 SYSTEM TEST RESULTS	(XXXXX., .XXXXX, XXXXX.)
R0233	67 DELTA GYRO ANGLES	(XX.XXXDEG FOR EACH)
R0234	70 PIPA BIAS	(X.XXXXXCM/SEC SEC FOR EACH)
R0236	71 PIPA SCALE FACTOR ERROR	(XXXXX.PARTS/MILLION FOR EACH)
R0238	72 DELTA POSITION	(XXXX.XKILOMETERS FOR EACH)
R0240	73 DELTA VELOCITY	(XXXX.XMETERS/SEC FOR EACH)
R0242	74 MEASUREMENT DATA (MIDCOURSE)	(XXX.XXHOURS (INTERNAL UNITS=WEEKS), XXXX.XKILOMETERS, XXXXX.)
R0244	75 MEASUREMENT DEVIATIONS (MIDCOURSE)	(XXXX.XKILOMETERS, XXXX.XMETERS/SEC, XXXX.XKILOMETERS)
R0246	76 POSITION VECTOR	(XXXX.XKILOMETERS FOR EACH)
R0248	77 VELOCITY VECTOR	(XXXX.XMETERS/SEC FOR EACH)

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P0250 MAJOR MODES FOR FLIGHT 501

R0251	00	IDLING
R0252	0X	PRELAUNCH
R0253	01	INITIALIZATION
R0254	02	GYROCOMPASSING
R0255	03	OPTICAL VERIFICATION
R0256	04	INERTIAL REFERENCE
R02561	05	VERTICAL ERECT. (COUNTING)
R02562	06	VERTICAL ERECT. (UNCONDITIONAL)
R0257	07	SYSTEM TEST
R0258	1X	BOOSTER MONITOR
R0259	11	FIRST STAGE BOOSTER MONITORING
R0260	14	S1V-B BOOSTER MONITOR WITH TUMBLE MON. ON
R0261	2X	COASTING PHASE
R0262	21	MANEUVER TO COLD SOAK ATTITUDE
R0263	22	HOLD ATTITUDE DURING ORBITAL INTEGRATION
R0264	23	HOLD ATTITUDE
R0265	24	HOLD ATTITUDE WITH STATE VECTOR UPDATE ALLOWED.
R02655	26	HOLD SPS2 ATTITUDE AND WAIT FOR TFF = TFFMIN
R0266	27	R, V, T UPDATING
R0267	3X	PRE-THRUSTING PHASES
R0268	31	PRE-SPS1
R0269	32	PRE-SPS2
R0270	4X	THRUSTING PHASES

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R0271	41	SPS1
R0272	42	SPS2

R0275	5X	ALIGNMENT
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R0276	6X	ENTRY
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R0277	61	CM/SM SEPARATION MANEUVER
R0278	62	PRE-ENTRY MANEUVER
R0279	63	INITIATE ENTRY STEERING
R0280	64	•05 G INDICATION
R0281	65	UP-CONTROL PHASE
R0282	66	BALLISTIC PHASE
R0283	67	FINAL PHASE

R0284	7X	ABORT PHASES
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R0285	71	POST-TUMBLE ATTITUDE RECOVERY
R0286	72	FREE-FALL ENTRY ABORT
R0287	73	ABORT BURN
R0288	74	TUMBLE ARREST BURN

R0289	77	G+N FLUSHED
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P0290 JOB PRIORITIES FOR 501

R0291 PRI037 = DOALARM
R0292 PRI036 = NWJOB
R0293 PRI035 = BIASONLY
R0294 = 1/GYRO
R0295 = ENEMA
R0296 = MODE32
R0297 = MODE26
R0298 PRI033 = POSTBY3
R0299 = CHARIN
R0300 PRI032 = MKVB50
R0301 = MKVB51
R0302 = REMKVB51
R0303 PRI031 = SPITGYRO
R0304 = MONDO
R0305 = FREDSPDO
R0306 PRI027 = SPITGYRO
R0307 = ENEMA
R0308 = S4BSMSEP
R0309 PRI025 = ABORTEST
R0310 = RED04.21
R0311 = BEGIN501
R0312 PRI024 = LIFTOFF
R0313 PRI023 = MANUJOB
R0314 PRI022 = TUMBJOB1
R0315 = TUMBJOB
R0316 PRI021 = CGJOB
R0317 PRI020 = TOP1
R0318 = TSELECT
R0319 = PRAWAKE
R0320 = STARTPL2
R0321 = GYRDRFT2
R0322 = CDUXJOB
R0323 PRI016 = SERVICER
R0324 = ENTRYTOP
R0325 PRI015 = SMOOTHER
R0326 PRI014 = CHKOPT
R0327 = UPTHETA1
R0328 PRI013 = SOAKJOB
R0329 PRI012 = TARGJOB
R0330 = SOAKINIT
R0331 = ATTIJOB
R0332 = ATTIJOB1 -1
R0333 = ATTIJOB2
R0334 = SEPMANU
R0335 = ENTAJOB
R0336 PRI010 = ROLLJOB
R0337 PRI07 = MODE23
R0338 = MODE44

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R0339 PRI06 = UPJOB
R03395 PRI05 = MONITJOB
R0340 = MARKDISP
R0341 PRI02 = FXFXCHK

L ERASABLE ASSIGNMENTS

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R0001 COUNTER AND SPECIAL REGISTER TAGS
 R0002 -----

0003	0000	A	EQUALS	0
0004	0001	Q	EQUALS	1
0005	0002	Z	EQUALS	2
0006	0003	LP	EQUALS	3
0007	0004	INO	EQUALS	4
0008	0005	IN1	EQUALS	5
0009	0006	IN2	EQUALS	6
0010	0007	IN3	EQUALS	7
0011	0010	OUT0	EQUALS	10
0012	0011	OUT1	EQUALS	11
0013	0012	OUT2	EQUALS	12
0014	0014	OUT4	EQUALS	14
0015	0015	BANKREG	EQUALS	15
0016	0016	RELINT	EQUALS	16
0017	0017	INHINT	EQUALS	17
0018	0020	CYR	EQUALS	20
0019	0021	SR	EQUALS	21
0020	0022	CYL	EQUALS	22
0021	0023	SL	EQUALS	23
0022	0024	ZRUPT	EQUALS	24
0023	0025	BRUPT	EQUALS	25
0024	0026	ARUPT	EQUALS	26
0025	0027	QRUPT	EQUALS	27
0026	0030	BANKRUPT	EQUALS	30
0027	0031	OVRUPT	EQUALS	31
0028	0032	LPRUPT	EQUALS	32
0029	0033	DSRUPTSW	EQUALS	33
0030	0034	OVCTR	EQUALS	34
0031	0035	TIME2	EQUALS	35
0032	0036	TIME1	EQUALS	36
0033	0037	TIME3	EQUALS	37
0034	0040	TIME4	EQUALS	40
0035	0041	UPLINK	EQUALS	41
0036	0042	OUTCR1	EQUALS	42
0037	0043	OUTCR2	EQUALS	43
0038	0044	PIPAX	EQUALS	44
0039	0045	PIPAY	EQUALS	45
0040	0046	PIPAZ	EQUALS	46
0041	0047	CDUX	EQUALS	47
0042	0050	CDUY	EQUALS	50
0043	0051	CDUZ	EQUALS	51
0044	0052	OPTX	EQUALS	52
0045	0053	PTY	EQUALS	53

T4RUPT PHASE COUNT GOES 7(-1)0

L ERASABLE ASSIGNMENTS

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P0046 INTERPRETIVE SPECIAL REGISTERS CONTAINED IN THE WORK AREA.

0047			0040	VAC	EQUALS	32D	RELATIVE TO FIXLOC
0048	REF	1	0040	VACX	EQUALS	VAC	
0049	REF	2 LAST 13	0042	VACY	EQUALS	VAC + 2	
0050	REF	3 LAST 13	0044	VACZ	EQUALS	VAC + 4	
0051			0046	X1	EQUALS	38D	INDEXES ARE RELATIVE TO FIXLOC
0052			0047	X2	EQUALS	39D	
0053			0050	S1	EQUALS	40D	AND SO ARE STEP REGISTERS
0054			0051	S2	EQUALS	41D	
0055			0052	QPRET	EQUALS	42D	AS IS QPRET

V21 NO1 E (170000) E (170000) E
E 2 E 20300 E

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0056

0060

SETLOC 60

R0057 THE FOLLOWING REGISTERS ARE USED BY THE INTERPRETER, AND MAY BE USED BY A BASIC JOB OR BASIC
 R0059 PORTIONS OF AN INTERPRETIVE JOB (SOME RESTRICTIONS APPEAR WITH RTB FOLLOWED BY TC DANZIG, BUT THE NINE REGISTERS
 R0061 VBUF AND BUF ARE AVAILABLE THEN). THE REGISTERS ARE NOT SAVED IN THEIR ENTIRETY DURING CHANGE JOB (MOST OF THEM
 R0063 ARE IGNORED), SO THAT THESE MUST BE USED ONLY AS TEMPORARIES BETWEEN ANY CCS NEWJOBS.

0065			0054	NNADTEM	EQUALS	54	TEMP FOR NOUN ADDRESS TABLE ENTRY.
0066			0055	NNTYPTM	EQUALS	55	TEMP FOR NOUN TYPE TABLE ENTRY.
0067			0056	IDAD1TEM	EQUALS	56	TEMP FOR INDIR ADRES TABLE ENTRY(MIXNN)
A0068							MUST = IDAD2TEM-1, = IDAD3TEM-2.
0069			0057	IDAD2TEM	EQUALS	57	TEMP FOR INDIR ADRES TABLE ENTRY(MIXNN)
A0070							MUST = IDAD1TEM+1, = IDAD3TEM-1.
0071		0060	0060	IDAD3TEM	ERASE		TEMP FOR INDIR ADRES TABLE ENTRY(MIXNN)
A0072							MUST = IDAD1TEM+2, = IDAD2TEM+1.
0073		0061	0061	BANKSET	ERASE		STORAGE FOR BANK BITS OF OBJECT PROGRAM
0074		0062	0062	ADDRWD	ERASE		THIS WILL CONTAIN A PROPER 12 BIT ADDR
0075		0063	0063	ORDER	ERASE		STORAGE FOR RIGHT-HAND OPERATORS
0076	REF	1	0063	UPDATRET	=	ORDER	RETURN FOR UPDATNN, UPDATVB
0077	REF	2 LAST 14	0063	CHAR	=	ORDER	TEMP FOR CHARIN
0078	REF	3 LAST 14	0063	ERCNT	=	ORDER	COUNTER FOR ERROR LIGHT RESET
0079	REF	4 LAST 14	0063	DECOUNT	=	ORDER	COUNTER FOR SCALING AND DISPLAY (DEC)
0080			0064	TEM11	ERASE		
0081	REF	1	0064	SGNON	=	TEM11	TEMP FOR +,- ON
0082	REF	2 LAST 14	0064	NOUNTEM	=	TEM11	COUNTER FOR MIXNOUN FETCH
0083	REF	3 LAST 14	0064	DISTEM	=	TEM11	COUNTER FOR OCTAL DISPLAY VERBS
0084	REF	4 LAST 14	0064	DECTEM	=	TEM11	COUNTER FOR FETCH (DEC DISPLAY VERBS)
0085	REF	5 LAST 14	0064	DECTEM1	=	TEM11	TEMP FOR NUM
0086			0065	MODE	ERASE		DENOTES VECTOR, DP, OR TP.
0087	REF	1	0065	ENTRET	=	MODE	EXIT FROM ENTER
0088			0066	LOADIND	ERASE		LOAD INDICATOR
0089	REF	1	0066	NEWEQIND	EQUALS	LOADIND	
0090	REF	1	0066	MONTEM	=	NEWEQIND	TEMP RETURN FOR MONITOR
0091			0067	FIXLOC	ERASE		ADDRESS OF CURRENT VAC AREA
0092			0070	VACLOC	ERASE		ADDRESS OF CURRENT VAC (= FIXLOC+32D)
0093			0071	VBUF	ERASE	+5	6 WORD TEMPORARY BLOCK FOR VXV, MXV, ETC
0094	REF	1	0071	TEMQS	EQUALS	VBUF	TEMP STORAGE FOR SWCALL ROUTINE
0095	REF	2 LAST 14	0072	BANKTEM	EQUALS	VBUF +1	LIKEWISE
0096	REF	3 LAST 14	0073	B	EQUALS	VBUF +2	ARGUMENT STORAGE IN FUNCTIONS
0097	REF	4 LAST 14	0073	PROGREG	=	VBUF +2	FOR GO EXEC PROGRAM
0098	REF	5 LAST 14	0073	MIXTEMP	=	VBUF +2	FOR MIXNOUN DATA
0099	REF	6 LAST 14	0073	SIGNRET	=	VBUF +2	RETURN FOR +,- ON
R0100	ALSO	PROGREG+1, PROGREG+2, MIXTEMP+1, MIXTEMP+2.					
0101	REF	7 LAST 14	0075	ESCAPE2	EQUALS	VBUF +4	NEGATIVE ARGUMENT SWITCH IN ARCCOS
0102	REF	8 LAST 14	0075	TAG1	EQUALS	VBUF +4	USED FOR PICKING UP INDEX AND STEP REGS
0103	REF	9 LAST 14	0076	TEMQ3	EQUALS	VBUF +5	RETURN FROM DDV AND SORTDIV
0104	REF	10 LAST 14	0076	POLISH	EQUALS	VBUF +5	TEMPORARY STORAGE FOR COMPLETE ADDRESSES

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0105	REF	11	LAST	14		0076	WDCNT	=	VBUF	+5	CHAR COUNTER FOR DSPWD
0106	REF	12	LAST	15		0076	INREL	=	VBUF	+5	INPUT BUFFER SELECTOR (X,Y,Z, REG)
0107					0077	0101	BUF	ERASE	+2		USED BY DMP1, SQRTDIV
0108	REF	1				0077	LOGTEM	EQUALS	BUF		LOG SUBROUTINE TEMP.
0109	REF	2	LAST	15		0101	SGNDMAX	EQUALS	BUF +2		USED IN TPAGREE
0110	REF	3	LAST	15		0101	TEM3	EQUALS	BUF +2		
0111	REF	4	LAST	15		0101	GCOMP SW	EQUALS	BUF +2		
0112					0102	0102	TEM2	ERASE			
0113	REF	1				0102	DSREL	=	TEM2		REL ADDRESS FOR DSPIN(TEM2 USED BY DAD1)
0114					0103	0103	TEM4	ERASE			
0115	REF	1				0103	TEMQ	EQUALS	TEM4		RETURN FROM TPAGREE
0116	REF	2	LAST	15		0103	DSMAG	=	TEM4		MAGNITUDE STORE FOR DSPIN
0117	REF	3	LAST	15		0103	IDADDTEM	=	TEM4		MIXNOUN INDIRECT ADDRESS STORAGE
0118					0104	0104	TEM5	ERASE			
0119	REF	1				0104	TEMQ2	EQUALS	TEM5		
0120	REF	2	LAST	15		0104	BASE	=	TEM5		
0121	REF	3	LAST	15		0104	COUNT	=	TEM5		FOR DSPIN (TEM5 IS USED BY DAD)
0122					0105	0105	TEM8	ERASE			
0123	REF	1				0105	TEM6	EQUALS	TEM8		ERASABLE ASSIGNMENTS BY EQUALS
0124					0106	0106	TEM9	ERASE			
0125	REF	1				0106	WRDRET	=	TEM9		RETURN FOR 5BLANK
0126	REF	2	LAST	15		0106	WDRET	=	TEM9		RETURN FOR DSPWD
0127	REF	3	LAST	15		0106	DECRET	=	TEM9		RETURN FOR PUTCOM(DEC LOAD)
0128	REF	4	LAST	15		0106	21/22REG	=	TEM9		TEMP FOR CHARIN
0129					0107	0107	TEM10	ERASE			
0130	REF	1				0107	IND	EQUALS	TEM10		USED IN CROSS ROUTINE
0131	REF	2	LAST	15		0107	MIXBR	=	TEM10		INDICATOR FOR MIXED OR NORMAL NOUN
0132	REF	3	LAST	15		0107	DSPMMTEM	=	TEM10		DSPCOUNT SAVE FOR DSPMM
0133					0110	0110	DVSW	ERASE			(THIS CAN PROBABLY BE EQUATED)
0134	REF	1				0110	SGNOFF	=	DVSW		TEMP FOR +,- ON
0135	REF	2	LAST	15		0110	NVTEMP	=	DVSW		TEMP FOR NVSUB
0136	REF	3	LAST	15		0110	SFTEMP1	=	DVSW		STORAGE FOR SF CONST HI PART(=SFTEMP2-1)
0137	REF	4	LAST	15		0110	DECTEM2	=	DVSW		TEMP FOR NUM
0138					0111	0111	BRANCHQ	ERASE			(DITTO)
0139	REF	1				0111	CODE	=	BRANCHQ		FOR DSPIN
0140	REF	2	LAST	15		0111	SFTEMP2	=	BRANCHQ		STORAGE FOR SF CONST LO PART(=SFTEMP1+1)
0141					0112	0112	COMPON	ERASE			(DITTO)
0142	REF	1				0112	DSEXIT	=	COMPON		RETURN FOR DSPIN
0143	REF	2	LAST	15		0112	EXITEM	=	COMPON		RETURN FOR SCALE FACTOR ROUTINE SELECT
0144	REF	3	LAST	15		0112	BLANKRET	=	COMPON		RETURN FOR 2BLANK
0145					0113	0113	ARETURN	ERASE			RETURN ADDRESS FOR ARCSIN/ARCCOS.
0146	REF	1				0113	LSTPTR	=	ARETURN		LIST POINTER FOR GRABUSY
0147	REF	2	LAST	15		0113	RELRET	=	ARETURN		RETURN FOR RELDSP
0148	REF	3	LAST	15		0113	FREERET	=	ARETURN		RETURN FOR FREEDSP
0149					0114	0114	ESCAPE	ERASE			ARCSIN/ARCCOS SWITCH
0150	REF	1				0114	CADRTM	=	ESCAPE		TEMP STORAGE FOR GRAB ROUTINES

R0151

THE FOLLOWING REGISTERS ARE USED EXCLUSIVELY BY THE EXECUTIVE.

L ERASABLE ASSIGNMENTS

USER'S OWN PAGE NO. 5

0152	0115	0117	MPAC	ERASE	+2	MULTIPLE-PRECISION ACCUMULATOR
0153	0120	0120	LOC	ERASE		LOCATION COUNTER FOR OPERATOR WORDS
0154	0121	0121	ADRLOC	ERASE		LOCATION COUNTER FOR OPERAND ADDRESSES
0155	0122	0122	OVFLND	ERASE		0 FOR NO OVERFLOW, NON-ZERO OTHERWISE
0156	0123	0123	PUSHLOC	ERASE		NEXT AVAILABLE ENTRY IN PUSH-DOWN LIST
0157	0124	0124	PRIORITY	ERASE		PRIORITY OF CURRENT JOB
0158	0125	0214		ERASE	+55D	EIGHT JOBS POSSIBLE
0159	0215	0215	NEWJOB	ERASE		SET NON-ZERO TO SIGNAL EXECUTIVE RUPT
0160	0216	0216	VAC1USE	ERASE		SEE EXECUTIVE PROGRAMS FOR USE OF THESE
0161	0217	0271	VAC1	ERASE	+42D	REGISTERS
0162	0272	0272	VAC2USE	ERASE		
0163	0273	0345	VAC2	ERASE	+42D	
0164	0346	0346	VAC3USE	ERASE		
0165	0347	0421	VAC3	ERASE	+42D	
0166	0422	0422	VAC4USE	ERASE		
0167	0423	0475	VAC4	ERASE	+42D	
0168	0476	0476	VAC5USE	ERASE		
0169	0477	0551	VAC5	ERASE	+42D	

R0170 THE FOLLOWING REGISTERS ARE USED EXCLUSIVELY BY THE WAITLISTER.

0171	0552	0560	LST1	ERASE	+6	DELTA T'S.
0172	0561	0570	LST2	ERASE	+7	TASK CADRS.
0173	0571	0571	RUPTAGN	ERASE		WAITLIST ADDITIONAL TASK INDICATOR.

0174 REF 1 0571 KEYTEMP2 = RUPTAGN TEMP FOR KEYRUPT, UPRUPT

R0175 THE FOLLOWING GROUP OF REGISTERS MAY BE USED AS TEMPORARY STORAGE BY ANY INTERRUPT PROGRAM OR BY ANY
 R0177 PROGRAM WHICH INHIBITS INTERRUPT. CARE MUST BE TAKEN, HOWEVER, TO SEE THAT THEY ARE NOT USED DURING A CALL
 R0179 TO THE EXECUTIVE (FOR EXAMPLE), FOR THE EXECUTIVE MAY USE THEM AS TEMPORARIES TOO.

0181		0572	0572	EXECTEM1	ERASE	THESE REGISTERS, EXECTEM1-3, MAY BE USED
0182	REF 1		0572	RUPTSTOR =	EXECTEM1	
0183	REF 2 LAST 16		0572	INHITEM =	EXECTEM1	INTERRUPT TEMP FOR STANDBY PREP
0184		0573	0573	EXECTEM2	ERASE	AS SCRATCH STORAGE BY ANY PROGRAM WHICH
0185	REF 1		0573	PROG	EQUALS EXECTEM2	
0186	REF 2 LAST 16		0573	INILOTEN =	EXECTEM2	INTERRUPT TEMP FOR STANDBY PREP
0187		0574	0574	EXECTEM3	ERASE	INHIBITS INTERRUPTS
0188	REF 1		0574	ITEMP3	EQUALS EXECTEM3	
0189	REF 2 LAST 16		0574	SRRUPT	EQUALS EXECTEM3	SHORT STORAGE FOR SR DURING INTERRUPT.
0190	REF 3 LAST 16		0574	LOOKRET =	EXECTEM3	INTERRUPT TEMP FOR STANDBY PREP
0191		0575	0575	EXECTEM4	ERASE	
0192		0576	0576	EXECTEM5	ERASE	BANK RETURN FROM PHASE CONTROL.
0193		0577	0577	NEWPRIO	ERASE	PRIORITY OF NEW JOB
0194	REF 1		0577	NVAL	= NEWPRIO	
0195	REF 1		0577	DELT	= NVAL	
0196	REF 2 LAST 16		0577	ITEMP1	= NEWPRIO	

L ERASABLE ASSIGNMENTS

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0197			0600	0600	WTEXT	ERASE	
0198	REF	1		0600	ITEMP2	=	WTEXT
0199	REF	2 LAST 17		0600	KEYTEMP1	=	WTEXT
0200	REF	3 LAST 17		0600	DSRUPTM	=	WTEXT
0201			0601	0601	LOCCTR	ERASE	
0202	REF	1		0601	PHASDATA	EQUALS	LOCCTR

TEMP FOR KEYRUPT, UPRUPT
TEMP FOR DSPOUT
USED TO LOCATE STORAGE FOR CORE REGISTRS

R0211 ERASABLE ASSIGNMENTS SPECIFIC TO PINBALL

0212			0602	0602	VERBREG	ERASE		VERB CODE
0213			0603	0603	NOUNREG	ERASE		NOUN CODE
0214			0604	0604	XREG	ERASE		R1 INPUT BUFFER
0215			0605	0605	YREG	ERASE		R2 INPUT BUFFER
0216			0606	0606	ZREG	ERASE		R3 INPUT BUFFER
0217			0607	0607	XREGLP	ERASE		LO PART OF XREG (FOR DEC CONV ONLY)
0218			0610	0610	YREGLP	ERASE		LO PART OF YREG (FOR DEC CONV ONLY)
0219			0611	0611	ZREGLP	ERASE		LO PART OF ZREG (FOR DEC CONV ONLY)
0220			0612	0612	MODREG	ERASE		MODE CODE
0221			0613	0613	REQRET	ERASE		RETURN REGISTER FOR LOAD
0222			0614	0614	DSPCOUNT	ERASE		DISPLAY POSITION INDICATOR
0223			0615	0615	DECBRNCH	ERASE		+DEC, - DEC, OCT INDICATOR
0224				0616		SETLOC	616	NEEDED FOR PINBALL AUTO CHECK
0225			0616	0620	DSPTM1	ERASE	+2	BUFFER STORAGE AREA 1 (MOSTLY FOR TIME)
0226	REF	1		0616	LANDMARK	EQUALS	DSPTM1	
0227	REF	2 LAST 17		0616	V75TEMP	EQUALS	DSPTM1	
0228			0621	0623	DSPTM2	ERASE	+2	BUFFER STORAGE AREA 2 (MOSTLY FOR DEG)
0229			0624	0624	NOUNADD	ERASE		MACHINE ADDRESS FOR NOUN
0230			0625	0625	MONSAVE	ERASE		N/V CODE FOR MONITOR, ALSO ACTIVITY
0231			0626	0626	MONSAVE1	ERASE		NOUNADD STORAGE FOR MONITOR WITH MATBS
0232			0627	0627	CADRSTOR	ERASE		ENDIDLE STORAGE
0233			0630	0630	GRABLOCK	ERASE		INTERNAL INTERLOCK FOR DISPLAY SYSTEM
0234			0631	0631	NVSBCADR	ERASE		NVSUB STORAGE FOR CALLING CADR
0235			0632	0632	LOADSTAT	ERASE		STATUS INDICATOR FOR LOADTST
0236			0633	0633	CLPASS	ERASE		PASS INDICATOR FOR CLEAR
0237			0634	0636	DSPLIST	ERASE	+2	WAITING LIST FOR DSP SYST INTERNAL USE

R02371 LONG-TERM STORAGE USED DURING INTERRUPT, NOT USED BY EXECUTIVE, WAITLIST, ETC.

02373			0637	0637	RUPTREG1	ERASE	
02374	REF	1		0637	KSAMPTM	EQUALS	RUPTREG1
02375			0640	0640	RUPTREG2	ERASE	
02376	REF	1		0640	OSAMPTM	EQUALS	RUPTREG2
02377			0641	0641	RUPTREG3	ERASE	
02378			0642	0642	RUPTREG4	ERASE	

R0238 MISCELLANEOUS RESERVATIONS

0239			0643	0644	SAMPTIME	ERASE	+1	SAMPLED TIME FOR PINBALL REFERENCE.
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L ERASABLE ASSIGNMENTS

USER'S OWN PAGE NO. 7

R0240 INTERPRETER SWITCH ASSIGNMENTS.

0241	0645	0647	STATE	ERASE	+2	45 SWITCHES USED BY INTERPRETIVE PROGS.
0242	REF 1	0645	DSPLOCK	EQUALS	STATE	BIT 4
0243	REF 2 LAST 18	0645	EXTVBACT	EQUALS	STATE	BIT 3
0244	REF 3 LAST 18	0645	UPLOCK	EQUALS	STATE	BIT 2
0245	REF 4 LAST 18	0646	FLAGWRD1	EQUALS	STATE +1	
0246	REF 5 LAST 18	0647	FLAGWRD2	EQUALS	STATE +2	
0247		0001	JSWITCH	EQUALS	1	FREE-FALL INTEGRATION.
0248		0002	ABORTSIG	EQUALS	2	SET WHEN GROUND ABORT V72 IS RECEIVED.
0249		0003	TFF2FLAG	EQUALS	3	TOM D. NAMED THIS
0250		0004	BIASFLAG	EQUALS	4	CAUSES DELV TO BE ZEROED AFTER 1/PIPA
0251		0005	NBSMBIT	EQUALS	5	IN-FLIGHT ALIGNMENT.
0252		0006	GONEPAST	EQUALS	6	RE-ENTRY
0253		0007	RELVELSW	EQUALS	7D	RE-ENTRY.
0254		0010	EGSW	EQUALS	8D	RE-ENTRY.
0255		0011	HUNTSW1	EQUALS	9D	RE-ENTRY.
0256		0012	HIND	EQUALS	10D	ENTRY.
02565		0012	VERIFLAG	EQUALS	10D	
A0257			DSKYFLAG	EQUALS	11D	GUARDS AGAINST DOUBLE KEYBOARD ENTRIES.
A0258			DSPLOCK	EQUALS	12D	KEYBOARD/SUBROUTINE CALL INTERLOCK
A0259			EXTVBACT	EQUALS	13D	EXTENDED VERB ACTIVITY
A0260			UPLOCK	EQUALS	14D	UPLINK INTERLOCK (ACTIVATED BY RECPTION
A0261						OF A BAD CODE IN UPLINK)
02615		0017	INRLSW	EQUALS	15D	PROGSTALL NOT USED DURING ENTRY.
0262		0017	PRGSW	EQUALS	15D	USED BY PRGSTALL.
0263		0021	COASTFLG	EQUALS	17D	17 TO 47 ARE 501 SEQUENCE CONTROL FLAGS.
0264		0022	UPDATFLG	EQUALS	18D	
0265		0023	SOAKFLAG	EQUALS	19D	
0266		0024	SHTDNFLG	EQUALS	20D	
0267		0025	ACTIVFLG	EQUALS	21D	
0268		0026	INTPFLAG	EQUALS	22D	
0269		0027	INITFLAG	EQUALS	23D	
0270		0030	S4BSMFLG	EQUALS	24D	
0271		0031	INT1FLAG	EQUALS	25D	
0272		0032	MONITFLG	EQUALS	26D	
0273		0033	DVMONFLG	EQUALS	27D	
0274		0034	STEERFLG	EQUALS	28D	
0275		0035	ENTRYFLG	EQUALS	29D	
0276		0036	LIFTFLAG	EQUALS	30D	
0277		0037	TUMBFLAG	EQUALS	31D	
0278		0041	DRIFTFLG	EQUALS	33D	
0279		0042	CDUXFLAG	EQUALS	34D	
0280		0043	BACKFLAG	EQUALS	35D	
0281		0044	ROLLFLAG	EQUALS	36D	

L ERASABLE ASSIGNMENTS

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0282		0045	CALCFLAG	EQUALS	37D
0283		0046	DOMANFLG	EQUALS	38D
0284		0047	NEGFLAG	EQUALS	39D
0285		0050	BEGINFLG	EQUALS	40D
0286		0051	SPS4FLAG	EQUALS	41D
0287		0052	SPS3FLAG	EQUALS	42D
0288		0053	SPS2FLAG	EQUALS	43D
0289		0054	SPS1FLAG	EQUALS	44D
0290		0055	TABTFLAG	EQUALS	45D
0291		0056	ABRTFLAG	EQUALS	46D
0292		0057	ARRSTFLG	EQUALS	47D

R0293 STORAGE USED BY PHASE CONTROL.

0294		0650	0655	PHASETAB	ERASE	+5	PHASE VALUES FOR 6 PROGRAMS
0295	REF	1	0650	PHASE1	EQUALS	PHASETAB	
0296	REF	2 LAST 19	0651	PHASE2	EQUALS	PHASETAB + 1	
0297	REF	3 LAST 19	0652	PHASE3	EQUALS	PHASETAB + 2	
0298	REF	4 LAST 19	0653	PHASE4	EQUALS	PHASETAB + 3	
0299	REF	5 LAST 19	0654	PHASE5	EQUALS	PHASETAB + 4	
0300	REF	6 LAST 19	0655	PHASE6	EQUALS	PHASETAB + 5	
0301		0656	0663	PHASEBAR	ERASE	+5	COMPLEMENTED COPY.
0302	REF	1	0656	-PHASE1	EQUALS	PHASEBAR	
0303		0664	0664	TBASE2	ERASE		
0304		0665	0665	TBASE3	ERASE		
0305		0666	0666	TBASE4	ERASE		
0306		0667	0667	TBASE5	ERASE		SHOULD COMPLETE THIS SET.

R0307 THE FOLLOWING REGISTERS ARE USED BY THE DOWNRUPT PROGRAM.

0308		0670	0670	TELCOUNT	ERASE		ENDPULSE FREQUENCY MONITORING COUNTER.
0309		0671	0671	LDATALST	ERASE		
0310		0672	0672	DNLSTADR	ERASE		BASE ADDRESS OF APPROPRIATE TM LIST.
0311		0673	0673	DNTMGOTO	ERASE		ADDRESS OF CURRENT DOWNLINK PHASE.
0312		0674	0674	TMINDEX	ERASE		STEPS THROUGH THE DOWNLIST
0313		0675	0675	TMMARKER	ERASE		
0314		0676	0676	MARKERCT	ERASE		

R0315 THE FOLLOWING STORAGE IS USED BY T4RUPT.

0316		0677	0677	CDUIND	ERASE		IMU CDU STATUS INDICATOR AND INDEXER.
0317		0700	0702	THETAD	ERASE	+2	SET OF THREE DEISRED ANGLES IN 2S COMPL.
0318		0703	0703	OPTIND	ERASE		OPTICS CDU STATUS INDICATOR AND INDEXER.
0319		0704	0705	DESOPTX	ERASE	+1	DESIRED OPTICS CDU ANGLES.
0320		0706	0706	DSPCNT	ERASE		STEPS THROUGH K-RELAY SLOTS IN DSPTAB.
0321		0707	0707	NOUT	ERASE		HOLDS NUMBER OF RELAY WORDS TO CHANGE.
0322		0710	0725	DSPTAB	ERASE	+13D	HOLDS STATE OF ALL RELAYS AND CHANGE INF
0323		0726	0726	OLDERR	ERASE		LAST-SAMPLED SYSTEM ERROR BITS.

L ERASABLE ASSIGNMENTS

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R0324 THE BITS OF OLDERR HAVE THE FOLLOWING MEANINGS:

R0325 BIT 1 = 1 IF THE PILOTS ATTITUDE BUTTON IS DEPRESSED.
 R0326 BIT 2 = 1 IF RESTART FAILED (AND DID A FRESH START).
 R0327 BIT 3 = 1 IF BIT 4 OF OUT1 WAS NOT INVERTED LAST NWJOB.
 R0328 BIT 4 = 1 TO INHIBIT IMU FAIL FOR 5 SECONDS AFTER COARSE ALIGN.
 R0329 BIT 5 = 1 IF CURTAINS CALLED (IMU MODING FAILURE, ETC.)
 R0330 BIT10 = 1 IF CDU FAIL IS ON IN FINE ALIGN.
 R0331 BIT11 = 1 IF PIPA FAIL IS ON.
 R0332 BIT12 = 1 IF IMU FAIL IS ON IN ANY MODE BUT COARSE ALIGN.

R0333 IN FLIGHT 501, BITS 2, 5, 11, AND 12 INHIBIT MAINTENANCE OF THE NIGHT WATCHMAN ALARM
 R0335 SO THAT IF THEY ARE PRESENT FOR 2 CONSECUTIVE NWJOBS, G & N FAIL WILL BE SENT TO THE MCP.

0337		0727	0727	WASKSET	ERASE	LAST SETTING OF IMU MODE SWITCHES.
0338		0730	0730	WASOPSET	ERASE	LAST SETTING OF OPTICS MODE SWITCHES.
0339		0731	0731	DESKSET	ERASE	DESIRED SETTING OF IMU MODE SWITCHES.
0340		0732	0732	DESOPSET	ERASE	DESIRED OPTICS MODES.

R0341 THE FOLLOWING REGISTERS ARE USED BY THE MODE SWITCHING AND MARK PROGRAMS.

0343		0733	0733	IMUCADR	ERASE	USED BY IMUSTALL.
0344	REF		0733	MODECADR	EQUALS IMUCADR	FOR INDEXING PURPOSES.
0345		0734	0734	OPTCADR	ERASE	USED BY OPTSTALL.
0346		0735	0735	MARKSTAT	ERASE	MARK BUTTON STATUS REGISTER.

L ERASABLE ASSIGNMENTS

USER'S OWN PAGE NO. 10

P0347 THE FOLLOWING STORAGE IS RESERVED FOR IMU COMPENSATION PARAMETERS.

0349			0736	0736	PBIASX	ERASE		
0350	REF	1		0736	PIPABIAS	EQUALS PBIASX		PIPA BIAS AND SCALE FACTOR TERMS
0351			0737	0737	PIPASCFX	ERASE		INTERMIXED.
0352	REF	1		0737	PIPASCF	EQUALS PIPASCFX		
0353			0740	0740	PBIASY	ERASE		
0354			0741	0741	PIPASCFY	ERASE		
0355			0742	0742	PBIASZ	ERASE		
0356			0743	0743	PIPASCFZ	ERASE		
0357			0744	0744	GBIASX	ERASE		GYRO BIAS DRIFTS.
0358			0745	0745	GBIASY	ERASE		
0359			0746	0746	GBIASZ	ERASE		
0360			0747	0747	ADIAX	ERASE		ACCELERATION SENSITIVE DRIFT ALONG THE
0361			0750	0750	ADIAY	ERASE		INPUT AXIS.
0362			0751	0751	ADIAZ	ERASE		
0363			0752	0752	ADSRAX	ERASE		ACCELERATION SENSITIVE DRIFT
0364			0753	0753	ADSRAY	ERASE		ALONG THE SPIN-REFERENCE AXIS.
0365			0754	0754	ADSRAZ	ERASE		
0366			0755	0755	1/PIPADT	ERASE		DELTA TIME FOR 1/PIPA.
0367	REF	1		0755	OLDBT1	EQUALS 1/PIPADT		TIME1 STORAGE DURING FREE-FALL COMP.
0368			0756	0763	GCOMP	ERASE +5		CONTAINS COMPENSATING GYRO TORQUES.

R0369 THE FOLLOWING INTERLOCK REGISTER IS USED BY THE GYRO ROUTINES.

0370			0764	0764	LGYRO	ERASE		ZERO IF GYROS AVAILABLE - ADDRESS OF
A0371								COMMANDS IF IN USE

L ERASABLE ASSIGNMENTS

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P0372 THE FOLLOWING STORAGE CONTAINS REFERENCE VARIABLES FOR SEVERAL MISSION PROGRAMS. INCLUDED HERE ARE
R0374 POSITION, VELOCITY, THEIR ASSOCIATED TIME, AND IMU STABLE MEMBER ORIENTATION (WHEN THE IMU IS ALIGNED).

0376		0765	0772	REFRRECT	ERASE	+5	REFERENCE RECTIFICATION VECTORS.
0377		0773	1000	REFVRECT	ERASE	+5	
0378		1001	1006	DELTAV	ERASE	+5	REFERENCE DEVIATION VECTORS.
0379		1007	1014	NUV	ERASE	+5	
0380		1015	1022	REFRCV	ERASE	+5	REFERENCE CONIC POSITION VECTOR.
0381		1023	1030	REFVCV	ERASE	+5	REFERENCE CONIC VELOCITY VECTOR.
0382		1031	1032	REFTC	ERASE	+1	REFERENCE TIME SINCE RECTIFICATION.
0383		1033	1034	TE	ERASE	+1	TIME CORRESPONDING TO POSITION AND VEL.
0384		1035	1036	REFXKEP	ERASE	+1	REFERENCE CONIC VARIABLE X.
0385		1037	1037	PBODY	ERASE		
0386		1040	1040	NSHIFT	ERASE		AVERAGE G INTEGRATOR PARAMETERS REQUIR-
0387		1041	1041	XSHIFT	ERASE		ING PERMANENT STORAGE
0388		1042	1042	CALCG	ERASE		
0389		1043	1050	UNITW	ERASE	+5	
0390	REF	1		0765	RN	EQUALS	REFRRECT
0391	REF	2 LAST 22		0765	RPIP	EQUALS	REFRRECT
0392	REF	1		0773	VN	EQUALS	REFVRECT
0393	REF	2 LAST 22		0773	VPIP	EQUALS	REFVRECT
0394	REF	1		1001	DELV	EQUALS	DELTAV
0395	REF	1		1001	DELVX	EQUALS	DELV
0396	REF	2 LAST 22		1003	DELVY	EQUALS	DELV +2
0397	REF	3 LAST 22		1005	DELVZ	EQUALS	DELV +4
0398	REF	1		1007	GRAVITY	EQUALS	NUV
0399	REF	1		1015	UNITR	EQUALS	REFRCV
0400	REF	1		1023	RMAG	EQUALS	REFVCV
0401	REF	2 LAST 22		1025	RMAGSQ	EQUALS	REFVCV +2
0402	REF	3 LAST 22		1027	DELTAT	EQUALS	REFVCV +4
0403	REF	1		1031	TEMX	EQUALS	REFTC
0404	REF	2 LAST 22		1032	TEMY	EQUALS	REFTC + 1
0405	REF	1		1033	TEMZ	EQUALS	TE
0406	REF	2 LAST 22		1034	TEMXY	EQUALS	TE + 1
0407	REF	1		1035	PIPAGE	EQUALS	REFXKEP
0408		1051	1072	REFSMMAT	ERASE	+17D	REFERENCE TO SM MATRIX
0409		1073	1074	DTEPOCH	ERASE	+1	
04092		1075	1075	REDOCNTR	ERASE		RESTART DATA SAVED IN THESE REGISTERS
04094		1076	1077	REDOTIME	ERASE	+1	

L ERASABLE ASSIGNMENTS

USER'S OWN PAGE NO. 12

P0410 THE FOLLOWING STORAGE IS TIME-SHARED BY MISSION PROGRAMS UNDER THE SUPERVISION OF MASTER CONTROL. IT IS
 R0412 ORGANIZED INTO THREE PARTS REFERRED TO AS A MEMORY, B MEMORY, AND C MEMORY. A PARTICULAR MISSION PHASE IS
 R0414 ASSIGNED TO ONE OF THE SEGMENTS IN SUCH A WAY THAT NO OTHER MISSION PHASE USING THE SAME SEGMENT WILL EVER RUN
 R0416 CONCURRENTLY; E.G., RE-ENTRY WILL NEVER RUN CONCURRENT WITH TVC. THE NUMBER OF AREAS (3) IS DETERMINED BY THE
 R0418 MAXIMUM NUMBER OF DISTINCT MISSION PROGRAMS WHICH RUN SIMULTANEOUSLY.

R0419 A MEMORY IS USED BY NAVIGATION PROGRAMS; MID-COURSE DURING FREE-FALL PORTIONS OF THE MISSION AND
 R0421 AVERAGE G INTEGRATION DURING ACCELERATED PHASES. GUIDANCE PROGRAMS SUCH AS TVC USE B MEMORY TOGETHER WITH THEIR
 R0423 ASSOCIATED ALIGNMENTS. THE C MEMORY PORTION IS USED THROUGHOUT MOST OF THE MISSION FOR THE MIDCOURSE ERROR
 R0425 TRANSITION MATRIX W, AND LATER BY RE-ENTRY AFTER THE LAST MEASUREMENT HAS BEEN INCORPORATED. THE EXCEPTION IS
 R0427 SYSTEM TEST, ASSIGNED TO A MEMORY, WHICH NEVER RUNS CONCURRENTLY WITH MISSION PROGRAMS.

0429	1100	1313	AMEMORY	ERASE	+139D
0430	1314	1560	BMEMORY	ERASE	+164D
0431	1561	1670	CMEMORY	ERASE	+71D

R0432 STORAGE USED TO SAVE T1,2 DURING STANDBY.

0433	REF	1		1100	TIME2SAV	EQUALS	AMEMORY	+000D
0434	REF	2	LAST 23	1101	TIME1SAV	EQUALS	AMEMORY	+001D
0435	REF	3	LAST 23	1102	IN1HISAV	EQUALS	AMEMORY	+002D
0436	REF	4	LAST 23	1103	IN1LOS AV	EQUALS	AMEMORY	+003D
0437	REF	5	LAST 23	1104	IN1HIDIF	EQUALS	AMEMORY	+004D
0438	REF	6	LAST 23	1105	IN1LODIF	EQUALS	AMEMORY	+005D

R0439 THE FOLLOWING A MEMORY LOCATIONS ARE USED BY MID-COURSE NAVIGATION:

0441	REF	7	LAST 23	1100	RRECT	EQUALS	AMEMORY	+000D
0443	REF	8	LAST 23	1100	RIGNTION	EQUALS	AMEMORY	+000D
0444	REF	9	LAST 23	1106	VRECT	EQUALS	AMEMORY	+006D
0445	REF	10	LAST 23	1106	VIGNTION	EQUALS	AMEMORY	+006D
0446	REF	11	LAST 23	1114	TDELTAV	EQUALS	AMEMORY	+012D
0447	REF	12	LAST 23	1114	NEWDLTAV	EQUALS	AMEMORY	+012D
0448	REF	13	LAST 23	1114	YV	EQUALS	AMEMORY	+012D
0449	REF	14	LAST 23	1122	TNUV	EQUALS	AMEMORY	+018D
0450	REF	1		1122	-UPADR	EQUALS	TNUV	
0451	REF	2	LAST 23	1123	STCNTR	EQUALS	TNUV +1	
0452	REF	15	LAST 23	1122	NEWNUV	EQUALS	AMEMORY	+018D
0453	REF	16	LAST 23	1122	ZV	EQUALS	AMEMORY	+018D
0454	REF	17	LAST 23	1130	RCV	EQUALS	AMEMORY	+024D
0455	REF	18	LAST 23	1130	FOUNDR	EQUALS	AMEMORY	+024D
0456	REF	19	LAST 23	1136	VCV	EQUALS	AMEMORY	+030D
0457	REF	20	LAST 23	1136	FOUNDV	EQUALS	AMEMORY	+030D
0458	REF	21	LAST 23	1144	TC	EQUALS	AMEMORY	+036D
0459	REF	22	LAST 23	1146	TET	EQUALS	AMEMORY	+038D
0460	REF	23	LAST 23	1150	XKEP	EQUALS	AMEMORY	+040D
0461	REF	24	LAST 23	1152	ALPHAV	EQUALS	AMEMORY	+042D

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0462	REF	25	LAST	23	1152	DELR	EQUALS	AMEMORY	+042D
0463	REF	26	LAST	24	1160	BETAV	EQUALS	AMEMORY	+048D
0464	REF	27	LAST	24	1160	DELVEL	EQUALS	AMEMORY	+048D
0465	REF	28	LAST	24	1160	UVL	EQUALS	AMEMORY	+048D
0466	REF	29	LAST	24	1166	PHIV	EQUALS	AMEMORY	+054D
0467	REF	30	LAST	24	1166	STARMEAS	EQUALS	AMEMORY	+054D
0468	REF	31	LAST	24	1174	LNDMRKV	EQUALS	AMEMORY	+060D
0469	REF	32	LAST	24	1174	PSIV	EQUALS	AMEMORY	+060D
0470	REF	33	LAST	24	1202	ROTLMV	EQUALS	AMEMORY	+066D
0471	REF	34	LAST	24	1202	FV	EQUALS	AMEMORY	+066D
0472	REF	35	LAST	24	1210	VECTAB	EQUALS	AMEMORY	+072D
0473	REF	36	LAST	24	1210	TAVEGON	EQUALS	AMEMORY	+072D
0474	REF	37	LAST	24	1212	TRESUME	EQUALS	AMEMORY	+074D
0475	REF	38	LAST	24	1214	RAVEGON	EQUALS	AMEMORY	+076D
0476	REF	39	LAST	24	1220	BVECTOR	EQUALS	AMEMORY	+080D
0477	REF	40	LAST	24	1220	UNE	EQUALS	AMEMORY	+080D
0478	REF	41	LAST	24	1222	VAVEGON	EQUALS	AMEMORY	+082D
0479	REF	42	LAST	24	1230	UNP	EQUALS	AMEMORY	+088D
0480	REF	43	LAST	24	1230	RIG-4SEC	EQUALS	AMEMORY	+088D
0481	REF	44	LAST	24	1236	ERADSQ/4	EQUALS	AMEMORY	+094D
0482	REF	45	LAST	24	1240	ERAD/2	EQUALS	AMEMORY	+096D
0483	REF	46	LAST	24	1254	ALPHAM	EQUALS	AMEMORY	+108D
0484	REF	47	LAST	24	1256	BETAM	EQUALS	AMEMORY	+110D
0485	REF	48	LAST	24	1256	LONGDES	EQUALS	AMEMORY	+110D
0486	REF	49	LAST	24	1260	TAU	EQUALS	AMEMORY	+112D
0487	REF	50	LAST	24	1260	GIVENT	EQUALS	AMEMORY	+112D
0488	REF	51	LAST	24	1260	DLONG	EQUALS	AMEMORY	+112D
0489	REF	52	LAST	24	1262	DT/2	EQUALS	AMEMORY	+114D
0490	REF	53	LAST	24	1262	LAT	EQUALS	AMEMORY	+114D
0491	REF	54	LAST	24	1264	H	EQUALS	AMEMORY	+116D
0492	REF	55	LAST	24	1264	LONG	EQUALS	AMEMORY	+116D
0493	REF	56	LAST	24	1266	TDEC	EQUALS	AMEMORY	+118D
0494	REF	57	LAST	24	1270	AZ	EQUALS	AMEMORY	+120D
0495	REF	58	LAST	24	1270	FBRANCH	EQUALS	AMEMORY	+120D
0496	REF	59	LAST	24	1271	HBRANCH	EQUALS	AMEMORY	+121D
0497	REF	60	LAST	24	1272	GMODE	EQUALS	AMEMORY	+122D
0498	REF	61	LAST	24	1272	NUMBTEMP	EQUALS	AMEMORY	+122D
0499	REF	62	LAST	24	1273	NUMBOPT	EQUALS	AMEMORY	+123D
0500	REF	63	LAST	24	1274	VARIANCE	EQUALS	AMEMORY	+124D
0501	REF	64	LAST	24	1274	HMAG	EQUALS	AMEMORY	+124D
0502	REF	65	LAST	24	1276	MEASQ	EQUALS	AMEMORY	+126D
0503	REF	66	LAST	24	1276	COTGAM	EQUALS	AMEMORY	+126D
0504	REF	67	LAST	24	1276	DELTAQ	EQUALS	AMEMORY	+126D
0505	REF	68	LAST	24	1300	MEASMODE	EQUALS	AMEMORY	+128D
0506	REF	69	LAST	24	1300	SITENUMB	EQUALS	AMEMORY	+128D
0507	REF	70	LAST	24	1301	NVCODE	EQUALS	AMEMORY	+129D
0508	REF	71	LAST	24	1302	MIDEXIT	EQUALS	AMEMORY	+130D

L ERASABLE ASSIGNMENTS

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0509	REF	72	LAST	24	1302	DSRTRN	EQUALS	AMEMORY	+130D
0510	REF	73	LAST	25	1303	WMATFLAG	EQUALS	AMEMORY	+131D
0511	REF	74	LAST	25	1303	INCORPEX	EQUALS	AMEMORY	+131D
0512	REF	75	LAST	25	1304	STEPEXIT	EQUALS	AMEMORY	+132D
0513	REF	76	LAST	25	1305	DIFEQCNT	EQUALS	AMEMORY	+133D
0514	REF	77	LAST	25	1305	NORMGAM	EQUALS	AMEMORY	+133D
0515	REF	78	LAST	25	1306	SCALEA	EQUALS	AMEMORY	+134D
0516	REF	79	LAST	25	1307	SCALEB	EQUALS	AMEMORY	+135D
0517	REF	80	LAST	25	1310	SCALEDT	EQUALS	AMEMORY	+136D
0518	REF	81	LAST	25	1311	SCALDELT	EQUALS	AMEMORY	+137D
0519	REF	82	LAST	25	1312	SCALER	EQUALS	AMEMORY	+138D
0520	REF	83	LAST	25	1313	FFFLAGS	EQUALS	AMEMORY	+139D

R052001 A MEMORY ASSIGNMENTS FOR UPDATE ROUTINE

052002	REF	84	LAST	25	1100	STBUFF	EQUALS	AMEMORY	+000D
052003	REF	85	LAST	25	1116	UPOLDMD	EQUALS	AMEMORY	+014D
052004	REF	86	LAST	25	1117	COMPNUMB	EQUALS	AMEMORY	+015D

R0521 ENTRY ITEMS IN AMEMORY TO BE INCLUDED IN DOWN-LINK.

0522	REF	87	LAST	25	1100	FX	EQUALS	AMEMORY	+ 0	SHARES THIS LOC WITH RRECT.
0523	REF	88	LAST	25	1106	PREDANG	EQUALS	AMEMORY	+ 06D	SHARES THIS LOC WITH VRECT.
0524	REF	89	LAST	25	1107	JJ	EQUALS	AMEMORY	+ 07D	SHARES THIS LOC WITH VRECT.
0525	REF	90	LAST	25	1110	THETAH	EQUALS	AMEMORY	+ 08D	SHARES THIS LOC WITH VRECT.
0526	REF	91	LAST	25	1112	LATANG	EQUALS	AMEMORY	+ 010D	SHARES THIS LOC WITH VRECT.
0527	REF	92	LAST	25	1222	L/D	EQUALS	AMEMORY	+ 082D	SHARES THIS LOC WITH VAVEGON.
0528	REF	93	LAST	25	1224	DIFF	EQUALS	AMEMORY	+ 084D	SHARES THIS LOC WITH VAVEGON.
R0529	END OF ENTRY ITEMS.									

R0530 A MEMORY ASSIGNMENTS FOR ROTATING EARTH ROUTINE.

0531	REF	94	LAST	25	1114	RTINIT	EQUALS	AMEMORY	+012D	
0532	REF	95	LAST	25	1122	RTEAST	EQUALS	AMEMORY	+018D	
0533	REF	96	LAST	25	1130	RTNORM	EQUALS	AMEMORY	+024D	
0534	REF	97	LAST	25	1214	RT	EQUALS	AMEMORY	+ 076D	SHARES THIS LOCATION WITH RAVEGON
0535	REF	98	LAST	25	1144	DTEAROT	EQUALS	AMEMORY	+036D	

R05352 A MEMORY TEMPORARIES USED BY PRELAUNCH

05354	REF	99	LAST	25	1243	PTEMP	EQUALS	AMEMORY	+ 99D
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L ERASABLE ASSIGNMENTS

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R0536 A MEMORY USAGE AS TEMPORARIES BY AVERAGE G ROUTINE.

0537	REF 100	LAST 25	1277	RN1	EQUALS	AMEMORY +127D
0538	REF 101	LAST 26	1305	VN1	EQUALS	AMEMORY +133D
0539	REF 102	LAST 26	1313	AVGRETRN	EQUALS	AMEMORY +139D

R05391 A MEMORY TEMPORARIES USED BY SERVICER

053911	REF 103	LAST 26	1261	VGCNT1	EQUALS	AMEMORY +113D
053912	REF 104	LAST 26	1262	DVCNT1	EQUALS	AMEMORY +114D
05392	REF 105	LAST 26	1263	VR1	EQUALS	AMEMORY +115D

12 LOCATIONS FOR VR, DIFFVECT

R0540 SYSTEM TEST A MEMORY USAGE:

0541	REF 106	LAST 26	1100	GENPL	EQUALS	AMEMORY +000D
0542	REF 1		1100	TAR1POS	EQUALS	GENPL
0543	REF 107	LAST 26	1114	FILDELX	EQUALS	AMEMORY +012D
0544	REF 108	LAST 26	1174	TMARK	EQUALS	AMEMORY +060D
0545	REF 109	LAST 26	1176	VMARK	EQUALS	AMEMORY +062D
0546	REF 110	LAST 26	1213	COARSAGN	EQUALS	AMEMORY +075D
0547	REF 111	LAST 26	1215	TESTTIME	EQUALS	AMEMORY +077D
0548	REF 112	LAST 26	1216	LTSTNDX	EQUALS	AMEMORY +078D
0549	REF 113	LAST 26	1220	COUNTPL	EQUALS	AMEMORY +080D
0550	REF 114	LAST 26	1221	PIPINDEX	EQUALS	AMEMORY +081D
0551	REF 115	LAST 26	1222	PIPANO	EQUALS	AMEMORY +082D
0552	REF 116	LAST 26	1223	POSITON	EQUALS	AMEMORY +083D
0553	REF 117	LAST 26	1224	RESULTCT	EQUALS	AMEMORY +084D
0554	REF 1		1224	NDXCTR	EQUALS	RESULTCT
0555	REF 118	LAST 26	1225	QPLACE	EQUALS	AMEMORY +085D
0556	REF 119	LAST 26	1226	PIPNDX	EQUALS	AMEMORY +086D
0557	REF 120	LAST 26	1230	STOREPL	EQUALS	AMEMORY +088D
0558	REF 121	LAST 26	1231	NBPOS	EQUALS	AMEMORY +89D
0559	REF 122	LAST 26	1232	TESTNDX	EQUALS	AMEMORY +90D
0560	REF 123	LAST 26	1233	CDUNDX	EQUALS	AMEMORY +91D
0561	REF 124	LAST 26	1234	GYROD	EQUALS	AMEMORY +92D
0562	REF 125	LAST 26	1242	DATAPL	EQUALS	AMEMORY +98D
0563	REF 126	LAST 26	1302	VACADR	EQUALS	AMEMORY +130D
0564	REF 127	LAST 26	1304	MKSTAT1	EQUALS	AMEMORY +132D
0565	REF 128	LAST 26	1305	COAROFIN	EQUALS	AMEMORY +133D
0566	REF 129	LAST 26	1307	MAXPTS2	EQUALS	AMEMORY +135D
0567	REF 130	LAST 26	1310	QPLAC	EQUALS	AMEMORY +136D
0568	REF 131	LAST 26	1311	PTS	EQUALS	AMEMORY +137D
0569	REF 132	LAST 26	1312	RUN	EQUALS	AMEMORY +138D
0570	REF 133	LAST 26	1313	EROPTN	EQUALS	AMEMORY +139D

L ERASABLE ASSIGNMENTS

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0571	REF	1		1561	TESTNO	EQUALS	CMEMORY	+000D
0572	REF	2	LAST 27	1562	SAVE	EQUALS	CMEMORY	+001D
0573	REF	3	LAST 27	1563	PLOW	EQUALS	CMEMORY	+002D
0574	REF	4	LAST 27	1564	CUSSANG	EQUALS	CMEMORY	+003D
0575	REF	5	LAST 27	1565	NEGCDU1	EQUALS	CMEMORY	+004D
0576	REF	6	LAST 27	1566	NEGCDU2	EQUALS	CMEMORY	+005D
0577	REF	7	LAST 27	1567	LOCNO	EQUALS	CMEMORY	+006D
0578	REF	8	LAST 27	1570	CALCDIR	EQUALS	CMEMORY	+007D
0579	REF	9	LAST 27	1571	BUBBLE	EQUALS	CMEMORY	+008D
0580	REF	10	LAST 27	1572	TEMDELV	EQUALS	CMEMORY	+009D
0581	REF	11	LAST 27	1573	RETAA	EQUALS	CMEMORY	+010D
0582	REF	12	LAST 27	1574	RETBB	EQUALS	CMEMORY	+011D
0583	REF	1		0621	STARNUMB	EQUALS	DSPTM2	

R0584 B MEMORY USED BY POWERED FLIGHT AND ATTITUDE MANEUVERS

0585	REF	1		1314	CDUTEMP	EQUALS	BMEMORY	+000D
0586	REF	2	LAST 27	1322	CDUBUF	EQUALS	BMEMORY	+006D
0587	REF	3	LAST 27	1322	WC	EQUALS	BMEMORY	+006D
0588	REF	4	LAST 27	1322	UNITN	EQUALS	BMEMORY	+006D
0589	REF	5	LAST 27	1322	RTRNSLUN	EQUALS	BMEMORY	+006D
0590	REF	6	LAST 27	1322	VF	EQUALS	BMEMORY	+006D
0591	REF	7	LAST 27	1330	SINCDU	EQUALS	BMEMORY	+012D
0592	REF	8	LAST 27	1336	COSCDU	EQUALS	BMEMORY	+018D
0593	REF	9	LAST 27	1344	DCDU	EQUALS	BMEMORY	+024D
0594	REF	10	LAST 27	1344	DUPCDU	EQUALS	BMEMORY	+024D
0595	REF	11	LAST 27	1344	STEERROR	EQUALS	BMEMORY	+024D
0596	REF	12	LAST 27	1352	DNB	EQUALS	BMEMORY	+030D
0597	REF	13	LAST 27	1352	VG	EQUALS	BMEMORY	+030D
0598	REF	14	LAST 27	1352	UNITVG	EQUALS	BMEMORY	+030D
0599	REF	15	LAST 27	1360	ERRORSUM	EQUALS	BMEMORY	+036D
0600	REF	16	LAST 27	1366	XSC	EQUALS	BMEMORY	+042D
0601	REF	17	LAST 27	1366	UNITRXV	EQUALS	BMEMORY	+042D
0602	REF	18	LAST 27	1366	UNITF	EQUALS	BMEMORY	+042D
0603	REF	19	LAST 27	1366	UNITD	EQUALS	BMEMORY	+042D
0606	REF	20	LAST 27	1374	YSC	EQUALS	BMEMORY	+048D
0607	REF	21	LAST 27	1374	UNITHORZ	EQUALS	BMEMORY	+048D
0608	REF	22	LAST 27	1374	UNITS	EQUALS	BMEMORY	+048D
0609	REF	23	LAST 27	1402	ZSC	EQUALS	BMEMORY	+054D
0610	REF	24	LAST 27	1402	UNITMDT	EQUALS	BMEMORY	+054D
0611	REF	25	LAST 27	1410	XSCD	EQUALS	BMEMORY	+060D
0612	REF	26	LAST 27	1410	CBDT	EQUALS	BMEMORY	+060D
0613	REF	27	LAST 27	1416	YSCD	EQUALS	BMEMORY	+066D
0614	REF	28	LAST 27	1416	VR	EQUALS	BMEMORY	+066D
0615	REF	29	LAST 27	1424	ZSCD	EQUALS	BMEMORY	+072D
06155	REF	30	LAST 27	1424	SGNTHETA	EQUALS	BMEMORY	+072D
0616	REF	31	LAST 27	1424	DIFFVECT	EQUALS	BMEMORY	+072D
0617	REF	32	LAST 27	1432	RTARG	EQUALS	BMEMORY	+078D

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06175	REF	33	LAST	27	1432	DTEMP1	EQUALS	BMEMORY	+078D
0618	REF	34	LAST	28	1432	S	EQUALS	BMEMORY	+078D
0619	REF	35	LAST	28	1434	DN	EQUALS	BMEMORY	+080D
0620	REF	36	LAST	28	1436	SMA	EQUALS	BMEMORY	+082D
0621	REF	37	LAST	28	1440	ANORMAL	EQUALS	BMEMORY	+084D
0622	REF	38	LAST	28	1442	LOOKANG	EQUALS	BMEMORY	+086D
06225	REF	39	LAST	28	1443	DISPCNTR	EQUALS	BMEMORY	+087D
0623	REF	40	LAST	28	1444	MDT	EQUALS	BMEMORY	+088D
0624	REF	41	LAST	28	1446	VGCNTR	EQUALS	BMEMORY	+090D
0625	REF	42	LAST	28	1447	DVCNTR	EQUALS	BMEMORY	+091D
A0626						K1ROLL	EQUALS	BMEMORY	+092D
0627	REF	43	LAST	28	1452	DTHETA	EQUALS	BMEMORY	+094D
0628	REF	44	LAST	28	1454	THETAMAN	EQUALS	BMEMORY	+096D
0629	REF	45	LAST	28	1456	TFF	EQUALS	BMEMORY	+098D
0630	REF	46	LAST	28	1460	LONGTIME	EQUALS	BMEMORY	+100D
0631	REF	47	LAST	28	1462	TLIFTOFF	EQUALS	BMEMORY	+102D
0632	REF	48	LAST	28	1462	TENGON	EQUALS	BMEMORY	+102D
0633	REF	49	LAST	28	1462	TCUTOFF	EQUALS	BMEMORY	+102D
0634	REF	50	LAST	28	1464	PIPTIME	EQUALS	BMEMORY	+104D
0635	REF	51	LAST	28	1466	LONGEXIT	EQUALS	BMEMORY	+106D
0636	REF	52	LAST	28	1467	CALLCADR	EQUALS	BMEMORY	+107D
0637	REF	53	LAST	28	1470	VRCADR	EQUALS	BMEMORY	+108D
0638	REF	54	LAST	28	1471	EXITCADR	EQUALS	BMEMORY	+109D
0639	REF	55	LAST	28	1472	ROLLC	EQUALS	BMEMORY	+110D
0640	REF	56	LAST	28	1474	EXITCAD1	EQUALS	BMEMORY	+112D

N.B. THIS LOCATION SHARED WITH ENTRY

N.B. THIS LOCATION SHARED WITH ENTRY

R0650 B, C MEMORY USED FOR ERASABLE 501 LAUNCH, AIMPOINT, VEHICLE DATA.

06545	REF	13	LAST	27	1617	TATLAN1	EQUALS	CMEMORY	+030D
0655	REF	57	LAST	28	1526	TATLANT	EQUALS	BMEMORY	+138D
06555	REF	14	LAST	28	1621	RTATLAN1	EQUALS	CMEMORY	+032D
0656	REF	58	LAST	28	1530	RTATLANT	EQUALS	BMEMORY	+140D
06565	REF	15	LAST	28	1627	TPACIF1	EQUALS	CMEMORY	+038D
0657	REF	59	LAST	28	1536	TPACIFC	EQUALS	BMEMORY	+146D
06575	REF	16	LAST	28	1631	RTPACIF1	EQUALS	CMEMORY	+040D
0658	REF	60	LAST	28	1540	RTPACIFC	EQUALS	BMEMORY	+148D
0659	REF	61	LAST	28	1546	ESQ(VR)	EQUALS	BMEMORY	+154D
0660	REF	62	LAST	28	1552	SEMILAT	EQUALS	BMEMORY	+158D
0661	REF	63	LAST	28	1556	TCOAST	EQUALS	BMEMORY	+162D
06615	REF	64	LAST	28	1560	TDECAY	EQUALS	BMEMORY	+164D

R0662 THE FOLLOWING ARE RE-ENTRY AND PRE-RE-ENTRY ASSIGNMENTS:

0663	REF	65	LAST	28	1314	(V)	EQUALS	BMEMORY	+000D
0664	REF	66	LAST	28	1324	DIFFOLD	EQUALS	BMEMORY	+ 008D
0665	REF	67	LAST	28	1326	Q7	EQUALS	BMEMORY	+ 010D

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0666	REF	68	LAST	28	1330	FACT2	EQUALS	BMEMORY	+012D
0667	REF	69	LAST	29	1332	ESQ	EQUALS	BMEMORY	+014D
0670	REF	70	LAST	29	1340	LEWD	EQUALS	BMEMORY	+020D
0671	REF	71	LAST	29	1342	VSQUARE	EQUALS	BMEMORY	+022D
0672	REF	72	LAST	29	1344	DADV1	EQUALS	BMEMORY	+ 24D
0673	REF	73	LAST	29	1346	RDOT	EQUALS	BMEMORY	+026D
0674	REF	74	LAST	29	1350	TENTRY	EQUALS	BMEMORY	+028D
0675	REF	75	LAST	29	1352	ROLLBIAS	EQUALS	BMEMORY	+30D
R0676	A HOLE.								
0677	REF	76	LAST	29	1356	ETA	EQUALS	BMEMORY	+034D
0678	REF	77	LAST	29	1362	D	EQUALS	BMEMORY	+038D
0679	REF	78	LAST	29	1364	V1	EQUALS	BMEMORY	+040D
0680	REF	79	LAST	29	1366	NEGTHET	EQUALS	BMEMORY	+042D
0681	REF	80	LAST	29	1370	V1OLD	EQUALS	BMEMORY	+ 044D
0682	REF	81	LAST	29	1372	K2ROLL	EQUALS	BMEMORY	+046D
0683	REF	82	LAST	29	1374	GOTOADDR	EQUALS	BMEMORY	+048D
0684	REF	83	LAST	29	1375	XPIPSUM	EQUALS	BMEMORY	+049D
0685	REF	84	LAST	29	1376	YPIPSUM	EQUALS	BMEMORY	+050D
0686	REF	85	LAST	29	1377	ZPIPSUM	EQUALS	BMEMORY	+051D
0687	REF	86	LAST	29	1400	XPIPBUF	EQUALS	BMEMORY	+052D
0688	REF	87	LAST	29	1404	YPIPBUF	EQUALS	BMEMORY	+056D
0689	REF	88	LAST	29	1410	ZPIPBUF	EQUALS	BMEMORY	+060D
0690	REF	89	LAST	29	1414	PIPCTR	EQUALS	BMEMORY	+ 64D
0691	REF	90	LAST	29	1415	DOLD	EQUALS	BMEMORY	+ 65D
R0692	A HOLE.								
0693	REF	91	LAST	29	1420	TEM1B	EQUALS	BMEMORY	+ 68D
0694	REF	92	LAST	29	1421	M1	EQUALS	BMEMORY	+ 69D
0695	REF	93	LAST	29	1422	GRAD	EQUALS	BMEMORY	+ 70D
R0696	A HOLE.								
0697	REF	94	LAST	29	1431	LEQ	EQUALS	BMEMORY	+ 77D
0698	REF	95	LAST	29	1433	DHOOK	EQUALS	BMEMORY	+ 79D
0699	REF	96	LAST	29	1435	AHOOKDV	EQUALS	BMEMORY	+ 81D
0700	REF	97	LAST	29	1437	DVL	EQUALS	BMEMORY	+ 83D
0701	REF	98	LAST	29	1450	K1ROLL	EQUALS	BMEMORY	+092D
R0704	UNB,X,Y,Z ARE DEFINED LATER.								

N.B. THIS LOCATION SHARED WITH POW. FL.

R0705 END OF RE-ENTRY STUFF

R0706 B MEMORY ASSIGNMENTS FOR PRE-LAUNCH ALIGNMENT.

0707	REF	99	LAST	29	1314	LATITUDE	EQUALS	BMEMORY	+000D
0708	REF	100	LAST	29	1316	AZIMUTH	EQUALS	BMEMORY	+002D
0709	REF	101	LAST	29	1320	GYROCSW	EQUALS	BMEMORY	+004D
0710	REF	102	LAST	29	1321	PRELTEMP	EQUALS	BMEMORY	+005D
0711	REF	103	LAST	29	1322	PRELXGA	EQUALS	BMEMORY	+006D
0712	REF	104	LAST	29	1323	PRELYGA	EQUALS	BMEMORY	+007D
0713	REF	105	LAST	29	1324	PRELZGA	EQUALS	BMEMORY	+008D
0715	REF	106	LAST	29	1332	INFLANG	EQUALS	BMEMORY	+014D

L ERASABLE ASSIGNMENTS

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0716	REF 107	LAST	29	1340	GYROANG	EQUALS	BMEMORY	+020D
0717	REF 108	LAST	30	1346	TAZ	EQUALS	BMEMORY	+26D
0718	REF 109	LAST	30	1350	TEL	EQUALS	BMEMORY	+28D
0719	REF 110	LAST	30	1352	VAZ	EQUALS	BMEMORY	+30D
0720	REF 111	LAST	30	1354	CHKNVTEM	EQUALS	BMEMORY	+32D
0721	REF 112	LAST	30	1356	FILTER	EQUALS	BMEMORY	+34D
0722	REF 113	LAST	30	1360	DELE	EQUALS	BMEMORY	+36D
0723	REF 1			1360	FILDELZ	EQUALS	DELE	
0724	REF 114	LAST	30	1362	DELS	EQUALS	BMEMORY	+38D
0725	REF 1			1362	FILDELY	EQUALS	DELS	
0726	REF 115	LAST	30	1364	INT	EQUALS	BMEMORY	+40D
0727	REF 116	LAST	30	1370	PREVTIME	EQUALS	BMEMORY	+44D
0728	REF 117	LAST	30	1446	THETAY	EQUALS	BMEMORY	+90D
0729	REF 118	LAST	30	1450	THETAZ	EQUALS	BMEMORY	+92D
0730	REF 119	LAST	30	1452	THETAX	EQUALS	BMEMORY	+94D
0731	REF 120	LAST	30	1454	THETASTH	EQUALS	BMEMORY	+96D
0732	REF 121	LAST	30	1456	THETA E	EQUALS	BMEMORY	+98D
0733	REF 122	LAST	30	1374	VECTEM	EQUALS	BMEMORY	+48D
0735	REF 123	LAST	30	1466	TIME2GR	EQUALS	BMEMORY	+106D
0736	REF 124	LAST	30	1467	TIME1GR	EQUALS	BMEMORY	+107D
0737	REF 125	LAST	30	1402	TARGET1	EQUALS	BMEMORY	+054D

R0738

THE FOLLOWING LOCATIONS ARE USED BY IN-FLIGHT ALIGNMENT:

0739	REF 126	LAST	30	1400	STARS	EQUALS	BMEMORY	+052D
0740	REF 1			1402	STARAD	EQUALS	TARGET1	
0741	REF 127	LAST	30	1416	STAR	EQUALS	BMEMORY	+066D
0742	REF 128	LAST	30	1424	XSM	EQUALS	BMEMORY	+072D
0743	REF 129	LAST	30	1432	YSM	EQUALS	BMEMORY	+078D
0744	REF 130	LAST	30	1440	ZSM	EQUALS	BMEMORY	+084D
0745	REF 131	LAST	30	1476	XNB	EQUALS	BMEMORY	+114D
0746	REF 132	LAST	30	1476	XDC	EQUALS	BMEMORY	+114D
0747	REF 133	LAST	30	1476	XDSMPR	EQUALS	BMEMORY	+114D
0748	REF 134	LAST	30	1504	YNB	EQUALS	BMEMORY	+120D
0749	REF 135	LAST	30	1504	YDC	EQUALS	BMEMORY	+120D
0750	REF 136	LAST	30	1504	YDSMPR	EQUALS	BMEMORY	+120D
0751	REF 137	LAST	30	1512	ZNB	EQUALS	BMEMORY	+126D
0752	REF 138	LAST	30	1512	ZDC	EQUALS	BMEMORY	+126D
0753	REF 139	LAST	30	1512	ZDSMPR	EQUALS	BMEMORY	+126D
0754	REF 140	LAST	30	1520	OGC	EQUALS	BMEMORY	+132D
0755	REF 141	LAST	30	1520	SAC	EQUALS	BMEMORY	+132D
0756	REF 142	LAST	30	1522	IGC	EQUALS	BMEMORY	+134D
0757	REF 143	LAST	30	1522	PAC	EQUALS	BMEMORY	+134D
0758	REF 144	LAST	30	1524	MGC	EQUALS	BMEMORY	+136D

R07582

RE-ENTRY ATTITUDE CONTROL UNIT VECTORS ALONG NAV BASE.

L ERASABLE ASSIGNMENTS

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07583	REF	1		1476	UXNB	EQUALS	XNB	USED IN RE-ENTRY CONTROL.
07584	REF	1		1504	UYNB	EQUALS	YNB	USED IN RE-ENTRY CONTROL.
07585	REF	1		1512	UZNB	EQUALS	ZNB	USED IN RE-ENTRY CONTROL.

R0759 THE FOLLOWING IS USED FOR ATTITUDE CONTROL

0760	REF	145	LAST	30	1314	ROLL	EQUALS	BMEMORY	+000D
0761	REF	146	LAST	31	1315	PITCH	EQUALS	BMEMORY	+001D
0762	REF	147	LAST	31	1316	YAW	EQUALS	BMEMORY	+002D

R0763 CMEMORY USED FOR STORAGE OF 501 BOOST ATTITUDE MONITOR PARAMETERS

0766	REF	17	LAST	28	1562	TROLL	EQUALS	CMEMORY	+001D
0767	REF	18	LAST	31	1564	TPITCH	EQUALS	CMEMORY	+003D
0768	REF	19	LAST	31	1566	TENDPTCH	EQUALS	CMEMORY	+005D
0769	REF	20	LAST	31	1570	TMONITOR	EQUALS	CMEMORY	+007D
0770	REF	21	LAST	31	1572	TTUMON	EQUALS	CMEMORY	+009D
0771	REF	22	LAST	31	1573	POLYENTR	EQUALS	CMEMORY	+010D
0772	REF	23	LAST	31	1574	POLYORDR	EQUALS	CMEMORY	+011D
0773	REF	24	LAST	31	1575	POLYCOEF	EQUALS	CMEMORY	+012D
0774	REF	25	LAST	31	1613	POLYEND	EQUALS	CMEMORY	+026D
0775	REF	26	LAST	31	1614	ROLLDTH	EQUALS	CMEMORY	+027D

R0776 THE FOLLOWING IS THE MIDCOURSE 6X6 ERROR TRANSITION MATRIX:

0777	REF	27	LAST	31	1561	W	EQUALS	CMEMORY	+000D
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R0778 C MEMORY ASSIGNMENTS FOR RE-ENTRY:

0779	REF	28	LAST	31	1561	UNI	EQUALS	CMEMORY	+000D
0780	REF	29	LAST	31	1567	UNITV	EQUALS	CMEMORY	+006D
0781	REF	30	LAST	31	1575	INITL/D	EQUALS	CMEMORY	+12D
0782	REF	31	LAST	31	1577	VCORR	EQUALS	CMEMORY	+014D
0783	REF	32	LAST	31	1601	A0	EQUALS	CMEMORY	+016D
0784	REF	33	LAST	31	1603	VBARS	EQUALS	CMEMORY	+018D
0785	REF	34	LAST	31	1605	COSG/2	EQUALS	CMEMORY	+020D
0786	REF	35	LAST	31	1607	GAMMAL	EQUALS	CMEMORY	+022D
0787	REF	36	LAST	31	1611	VS	EQUALS	CMEMORY	+ 024D
0788	REF	37	LAST	31	1613	DO	EQUALS	CMEMORY	+026D
0789	REF	38	LAST	31	1615	VL	EQUALS	CMEMORY	+ 28D
0790	REF	39	LAST	31	1617	V	EQUALS	CMEMORY	+030D
0791	REF	40	LAST	31	1621	FACTOR	EQUALS	CMEMORY	+032D

L ERASABLE ASSIGNMENTS

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0792	REF	41	LAST	31	1623	VREF	EQUALS	CMEMORY	+034D
0793	REF	42	LAST	32	1625	RDOTREF	EQUALS	CMEMORY	+036D
0794	REF	43	LAST	32	1627	ALP	EQUALS	CMEMORY	+038D
0795	REF	44	LAST	32	1631	FACT1	EQUALS	CMEMORY	+040D

L ERASABLE ASSIGNMENTS

USER'S OWN PAGE NO. 22

R07951

R07953 SAVE RRECT AND VRECT IN CMEMORY TO RESTART ORBITAL INTEGRATION.

07954 REF 45 LAST 32

1655 RRECCMEM EQUALS CMEMORY + 60D

07955 REF 46 LAST 33

1663 VRECCMEM EQUALS CMEMORY + 66D

R0796 ERASABLE ADDED TO THE END OF 202 ASSIGNMENTS FOR FLIGHTS 501 & 2.

0799	1671	1672	UPTIME	ERASE	+1	SHOULD BE SET TO 37777, 37777 DURING
A0800						PRELAUNCH ERASABLE LOAD.
080102	1673	1673	ANGLEX	ERASE		COLD SOAK - X GIMBAL ANGLE
080104	1674	1674	ANGLEY	ERASE		COLD SOAK - Y GIMBAL ANGLE
080106	1675	1675	ANGLEZ	ERASE		COLD SOAK - Z GIMBAL ANGLE
080108	1676	1677	TFFMIN	ERASE	+1	TIME TO START SPS2 BURN SEQUENCE
08011	1700	1701	1/RLLRTE	ERASE	+1	ROLL RATE DURING BOOST MONITOR
080112	1702	1703	MAXROLL	ERASE	+1	MAX DELTA ROLL ANGLE DURING ROLL MONITOR
080113	1704	1707	CGY	ERASE	+3	C.G. ROTATION ABOUT Y S/C AXIS
080114	1710	1713	CGZ	ERASE	+3	C.G. ROTATION ABOUT Z S/C AXIS
080115	1714	1717	ATDT	ERASE	+3	INTEGRATED INITIAL THRUST ACC. MAGNITUDE
080116	1720	1721	TFFNOM	ERASE	+1	NOMINAL TIME FROM NOMCASE TO 400,000 FT.
080117	1722	1722	S2SWITCH	ERASE		SET NEGATIVE TO RECOMPUTE SPS2 ATTITUDE
080118	1723	1723	REFSWTCH	ERASE		SET NEGATIVE FOR UNCOND. 280K FT FF REF
080119	1724	1724	REDOSPS1	ERASE		SET NEGATIVE TO REDO SPS1 AT AVGON
08012	1725	1726	ECC	ERASE	+1	FOR SIMULATION EDITING

L ERASABLE ASSIGNMENTS

USER'S OWN PAGE NO. 23

P080125 THE FOLLOWING STORAGE IS RESERVED EXCLUSIVELY FOR SELF-CHECK

0802		1760	1777	SELFERAS ERASE	1760 - 1777	
08021			1760	ERESTORE =	1760	
0803	REF	1	0115	QADRS	EQUALS MPAC	RESERVED
0804			1761	2OPTIONS =	1761	
0805			1762	S MODE =	1762	
0806			1763	FAILREG =	1763	
0807			1764	SFAIL =	1764	
0808			1765	ERCOUNT =	1765	
0809			1766	SCOUNT =	1766	
0810			1771	SKEEP1 =	1771	
0811			1772	SKEEP2 =	1772	
0812			1773	SKEEP3 =	1773	
0813			1774	SKEEP4 =	1774	
0814			1775	SKEEP5 =	1775	
0815			1776	SKEEP6 =	1776	
0816			1777	SKEEP7	EQUALS 1777	

L 001 INTERRUPT TRANSFER ROUTINES

USER'S OWN PAGE NO. 1

0001				2000	SETLOC	2000	
0002	REF	1		2000	5	0026	0
0003	REF	1		2001	3	0001	0
0004	REF	1		2002	3	0027	1
0005	REF	1		2003	0	2177	1
0006	REF	2	LAST	35	2004	5	0026
0007	REF	2	LAST	35	2005	3	0001
0008	REF	2	LAST	35	2006	3	0027
0009	REF	1			2007	0	2034
0010	REF	3	LAST	35	2010	5	0026
0011	REF	3	LAST	35	2011	3	0001
0012	REF	3	LAST	35	2012	3	0027
0013	REF	1			2013	0	2630
0014	REF	4	LAST	35	2014	5	0026
0015	REF	4	LAST	35	2015	3	0001
0016	REF	4	LAST	35	2016	3	0027
0017	REF	1			2017	0	2042
0018	REF	5	LAST	35	2020	5	0026
0019	REF	5	LAST	35	2021	3	0001
0020	REF	5	LAST	35	2022	3	0027
0021	REF	1			2023	0	2037
0022	REF	6	LAST	35	2024	5	0026
0023	REF	6	LAST	35	2025	3	0001
0024	REF	6	LAST	35	2026	3	0027
0025	REF	1			2027	0	2377
0026					2030	2	0017
0027	REF	1			2031	3	2075
0028	REF	1			2032	5	0015
0029	REF	1			2033	0	7005

OUTPUT CONTROL.

DOWNLINK.

GOJAM - PARITY ALARM, POWER FAIL, ETC.

L 001 INTERRUPT TRANSFER ROUTINES

USER'S OWN PAGE NO. 2

0030	REF	1		2034	0	3007	0	ERRUPT	TC	ALARM	***NO ERRUPTS IN SYSTEM 5***
0031				2035		01101	0		OCT	01101	
0032	REF	1		2036	0	2266	1		TC	NBRESUME	

0033	REF	1		2037	3	2075	1	UPRUPT	CAF	UPBANK	CALL IN BANK WITH UPRUPT PROGRAM.
0034	REF	2	LAST	35	2040	3	0015	0	XCH	BANKREG	
0035	REF	1		2041	0	7375	1		TC	UPRUPTB	

0036	REF	1		2042	3	2045	1	KEYRUPT	CAF	MODEBANK	
0037	REF	3	LAST	36	2043	3	0015	0	XCH	BANKREG	
0038	REF	1		2044	0	6461	1		TC	KEYRUPTA	

0039	REF	2	LAST	36	2045	30461	1	MODEBANK	CADR	KEYRUPTA	
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L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 1

0001					4000		SETLOC 4000		SECOND HALF OF FIXED-FIXED.	
0002	REF	7	LAST	35	4000	1 0001 1	INTPRET	CCS	Q	ENTRY TO INTERPRETER
0003	REF	1			4001	5 0121 0		TS	ADRLOC	
0004	REF	4	LAST	36	4002	4 0015 1		CS	BANKREG	GET BANKBITS
0005	REF	1			4003	5 0061 0		TS	BANKSET	
0006					4004	0 4007 1		TC	+3	
0007	REF	2	LAST	37	4005	4 0061 1	NEWEQUN	CS	BANKSET	HERE FOR NEW EQUATIONS
0008	REF	5	LAST	37	4006	5 0015 0		TS	BANKREG	
0009	REF	1			4007	3 4516 1		CAF	ONE	SET NEWEQIND TO CALL LOAD
0010	REF	2	LAST	14	4010	5 0066 1		TS	NEWEQIND	
0011	REF	2	LAST	37	4011	6 0121 0		AD	ADRLOC	C(ADRLOC) = LOCATION LAST ADDRESS USED
0012	REF	1			4012	5 0120 1		TS	LOC	FOR OPERATORS
0013	REF	1			4013	2 0000 0		INDEX	A	GET FIRST OP AND NO. OF OPERATOR WORDS
0014					4014	4 0000 0		CS	0	
0015	REF	1			4015	6 4335 0		AD	MINUS1	
0016	REF	5	LAST	14	4016	5 0063 1		TS	ORDER	
0017	REF	1			4017	7 4720 1		MASK	LOW7	NUMBER OF ADDITIONAL OPERATOR WORDS
0018	REF	2	LAST	37	4020	6 0120 1		AD	LOC	
0019	REF	3	LAST	37	4021	5 0121 0		TS	ADRLOC	AND SET ADRLOC
0020	REF	1			4022	3 5501 0		CAF	ZERO	TO SET ORDER TO ZERO
0021	REF	1			4023	0 4072 0		TC	IPROC2	

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 2

0022	REF	1		4024	1 0215 0	DANZIG	CCS	NEWJOB	INTERPRETIVE INTERRUPT
0023	REF	1		4025	0 2113 0		TC	CHANG2	CALL IN BANK0 AND SWITCH JOBS
0024	REF	3	LAST 37	4026	4 0061 1		CS	BANKSET	RESET BANK BITS OF OBJECT PROGRAM
0025	REF	6	LAST 37	4027	5 0015 0		TS	BANKREG	
0026	REF	6	LAST 37	4030	1 0063 0		CCS	ORDER	HAS NEXT OP CODE BEEN PROCESSED
0027	REF	1		4031	0 4200 1		TC	LOWWD	NEXT INSTRUCTION WAS RIGHT-HAND
0028	REF	3	LAST 37	4032	2 0120 0		INDEX	LOC	PICK UP POSSIBLE NEXT INSTRUCTION
0029				4033	4 0001 1		CS	1	
0030	REF	2	LAST 37	4034	1 0000 0		CCS	A	
0031	REF	1		4035	0 4065 0		TC	IPROC	IT IS - GO PROCESS IT
0032				4036	0 4037 1		TC	+1	IN CASE THE FIRST ADDRESS WAS INACTIVE
0033	REF	4	LAST 37	4037	2 0121 1		INDEX	ADRLOC	END OF EQUATION
0034				4040	4 0001 1		CS	1	
0035	REF	3	LAST 38	4041	1 0000 0		CCS	A	IS THERE ANOTHER ADDRESS
0036	REF	1		4042	0 4317 0		TC	PUSHDOWN	NO - INSERT IN PUSH-DOWN LIST
0037				4043	00042 1	D34	DEC	34	USED TO DISPATCH STORE OPERATIONS
0038	REF	1		4044	5 0076 0	STORADR	TS	POLISH	PROCESS STORE ADDRESSES
0039	REF	1		4045	0 4364 1		TC	INCADR	TO SHOW WE PICKED UP ANOTHER ADDRESS
0040	REF	1		4046	3 4043 1		CAF	D34	FORM CODES 32 - 34
0041	REF	2	LAST 14	4047	6 0065 1		AD	MODE	
0042				4050	6 0000 1		DOUBLE		BECAUSE WE HAVE TO PUT IT INTO CYR
0043	REF	1		4051	5 0020 0		TS	CYR	
0044	REF	1		4052	3 4302 1		CAF	LOW11	
0045	REF	2	LAST 38	4053	7 0076 1		MASK	POLISH	SAVE ERASABLE PART PLUS POSSIBLE TAG
0046	REF	3	LAST 38	4054	3 0076 0		XCH	POLISH	
0047	REF	1		4055	6 4060 0		AD	NEGIDEX	DIRECT OR INDEXED
0048	REF	4	LAST 38	4056	1 0000 0		CCS	A	
0049	REF	1		4057	0 4233 1		TC	INDEX	IT IS INDEXED - PRESENT POLISH OK
0050				4060	44000 1	NEGIDEX	OCT	-33777	NEGATIVE OF STORE ADDRESS PREFIX +1
0051	REF	1		4061	4 4504 0		CS	BIT11	
0052	REF	4	LAST 38	4062	6 0076 0		AD	POLISH	
0053	REF	5	LAST 38	4063	5 0076 0		TS	POLISH	
0054	REF	1		4064	0 4257 0		TC	NONINDEX	

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 3

0055	REF	7	LAST	38	4065	5	0063	1	IPROC	TS	ORDER	OP CODE WORD WAS PICKED UP BY CCS
0056	REF	4	LAST	38	4066	3	0120	1		XCH	LOC	
0057	REF	2	LAST	37	4067	6	4516	1		AD	ONE	
0058	REF	5	LAST	39	4070	3	0120	1		XCH	LOC	
0059	REF	2	LAST	37	4071	7	4720	1		MASK	LOW7	SAVE LOW ORDER CODE
0060	REF	8	LAST	39	4072	3	0063	1	IPROC2	XCH	ORDER	ENTRY FROM NEWEQUN
0061	REF	1			4073	2	5777	1		INDEX	OPOVF	
0062	REF	1			4074	4	4507	0		MP	BIT8	SHIFT IT RIGHT SEVEN PLACES
0063	REF	2	LAST	38	4075	5	0020	0		TS	CYR	GETTING RID OF THE RIGHT-HAND OP
0064	REF	3	LAST	39	4076	1	0020	1	JUMPIT	CCS	CYR	LOOK AT LOW-ORDER PREFIX BIT
0065	REF	1			4077	0	4215	0		TC	ADDRESS	INDEXABLE - DECODE ADDRESS IMMEDIATELY
0066					4100		00043	0	LOADOP	DCT	43	USED BY UNARY LOAD
0067	REF	4	LAST	39	4101	1	0020	1		CCS	CYR	LOOK AT SECOND ONE HERE
0068	REF	2	LAST	38	4102	0	4364	1		TC	INCADR	PROCESS MISCELLANEOUS
0069	REF	1			4103	0	4113	0		TC	MISCPROC	
0070	REF	3	LAST	37	4104	1	0066	0	UNAPROC	CCS	NEWEQIND	PROCESS UNARY REQUESTS
0071	REF	1			4105	0	4152	0		TC	UNALOAD	LOAD AN ACCUMULATOR AND RETURN
0072	REF	3	LAST	39	4106	3	4720	0		CAF	LOW7	
0073	REF	7	LAST	38	4107	5	0015	0		TS	BANKREG	CALL IN BANK 0 WHERE UNARIES ARE
0074	REF	5	LAST	39	4110	7	0020	1		MASK	CYR	WITHOUT CLOBBERING
0075	REF	5	LAST	38	4111	2	0000	0		INDEX	A	
0076	REF	1			4112	0	4453	1		TC	UNAJUMP	

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 4

P0077 PROCESS MISCELLANEOUS OP CODES.

0078	REF	6	LAST	39	4113	2	0000	0	MISCPROC	INDEX	A	
0079					4114	4	0000	0		CS	0	
0080	REF	3	LAST	39	4115	6	4516	1		AD	ONE	WE KNOW ITS AN ADDRESS
0081	REF	6	LAST	38	4116	5	0076	0		TS	POLISH	TO FIT IN WITH THE POLISH ADDRESS SCHEME
												SAVE ENTIRE ADDRESS
0082	REF	7	LAST	40	4117	1	0000	0		CCS	A	
0083	REF	1			4120	0	4145	0		TC	ENDMISC	
0084					4121		42000	1	42K	OCT	42000	
0085					4122	0	4124	1		TC	+2	
0086	REF	1			4123	0	4143	0		TC	MISCREL	
0087	REF	1			4124	6	2261	0		AD	BANKMASK	
0088	REF	8	LAST	40	4125	1	0000	0		CCS	A	
0089	REF	4	LAST	40	4126	6	4516	1		AD	ONE	
0090					4127	0	4131	0		TC	+2	
0091	REF	1			4130	0	4135	1		TC	MISC2	
0092	REF	1			4131	6	4121	1		AD	42K	
0093					4132	4	0000	0		COM		
0094	REF	7	LAST	40	4133	5	0076	0		TS	POLISH	
0095	REF	2	LAST	40	4134	0	4145	0		TC	ENDMISC	
0096	REF	1			4135	6	4517	0	MISC2	AD	RELTEST	
0097	REF	9	LAST	40	4136	1	0000	0		CCS	A	
0098	REF	8	LAST	40	4137	4	0076	1		CS	POLISH	
0099					4140	0	4143	0		TC	+3	
0100	REF	9	LAST	40	4141	4	0076	1		CS	POLISH	
0101					4142	0	4144	1		TC	+2	
0102	REF	1			4143	6	0067	0	MISCREL	AD	FIXLOC	
0103	REF	1			4144	5	0062	0		TS	ADDRWD	
0104	REF	4	LAST	39	4145	3	4720	0	ENDMISC	CAF	LOW7	
0105	REF	8	LAST	39	4146	5	0015	0		TS	BANKREG	CALL IN BANK 0
0106	REF	6	LAST	39	4147	7	0020	1		MASK	CYR	
0107	REF	10	LAST	40	4150	2	0000	0		INDEX	A	
0108	REF	1			4151	0	4433	1		TC	NONJUMP	

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0109	REF	5	LAST	40	4152	3	4720	0	UNALOAD	CAF	LOW7	PROCESS LOADING REQUESTS FOR UNARY OPERATIONS. START BY FINDING APPROPRIATE MODE TMOVE HAS CODE 0
0110	REF	7	LAST	40	4153	7	0020	1		MASK	CYR	
0111	REF	11	LAST	40	4154	1	0000	0		CCS	A	
0112					4155	0	4160	1		TC	+3	
0113	REF	1			4156	4	5503	0		CS	TWO	SKIP IF 50 AND SET A TO -1 IF WE DIDNT SKIP
0114	REF	1			4157	0	4164	0		TC	MODESET	
0115	REF	12	LAST	41	4160	4	0000	0		CS	A	
0116	REF	1			4161	6	4650	0		AD	OCT40003	
0117	REF	3	LAST	38	4162	5	0065	1		TS	MODE	SKIP IF 50 AND SET A TO -1 IF WE DIDNT SKIP
0118	REF	2	LAST	37	4163	4	5501	1		CS	ZERO	
0119	REF	4	LAST	41	4164	5	0065	1	MODESET	TS	MODE	
0120	REF	1			4165	3	4500	0		CAF	NEGSIGN	GET INDEXING BIT FROM UNARY OP CODE IN CYR
0121	REF	8	LAST	41	4166	7	0020	1		MASK	CYR	
0122	REF	1			4167	6	4100	1		AD	LOADOP	AD LOAD OPCODE = OCT 43 DOUBLE OP CODE AND DUPLICATE SIGN IN BIT 1 WHERE IT GOES INTO SIGN OF CYR
0123					4170	6	0000	1	60K	DOUBLE		
0124	REF	9	LAST	41	4171	3	0020	0		XCH	CYR	RE-EDIT, NOT BOTHERING ABOUT BITS 8-14 STANDARD ADDRESS ROUTINE
0125	REF	1			4172	5	0023	0		TS	SL	
0126	REF	2	LAST	39	4173	0	4215	0		TC	ADDRESS	
0127	REF	4	LAST	39	4174	5	0066	1	ULRET	TS	NEWEQIND	RETURN HERE AFTER LOADING
0128	REF	2	LAST	41	4175	3	0023	0		XCH	SL	RESTORE ORIGINAL OP CODE AND DISPATCH AS USUAL
0129	REF	10	LAST	41	4176	5	0020	0		TS	CYR	
0130	REF	1			4177	0	4106	1		TC	UNAPROC +2	
0131	REF	3	LAST	41	4200	3	5501	0	LOWWD	CAF	ZERO	RIGHT HAND OP CODE HAS ALREADY BEEN SET
0132	REF	9	LAST	39	4201	3	0063	1		XCH	ORDER	
0133	REF	1			4202	0	4075	1		TC	JUMPIT -1	

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0134	REF	5	LAST	41	4203	5	0066	1	LOAD	TS	NEWEQIND	LOADS FIRST ADDRESS OF NEW EQUATIONS
0135	REF	5	LAST	41	4204	2	0065	0		INDEX	MODE	TRIGGERS TYPE OF CLEAR-AND-ADD
0136					4205	0	4210	0		TC	+3	
0137	REF	1			4206	0	4533	0		TC	TCA1	
0138	REF	1			4207	0	4537	1		TC	DCA1	
0139	REF	1			4210	0	4611	0		TC	VCA1	
0140	REF	6	LAST	42	4211	1	0066	0	LOADRET	CCS	NEWEQIND	IF A UNARY LOAD, THIS IS STILL ONE
0141	REF	1			4212	0	4174	1		TC	ULRET	NO SECOND ADDRESS FOR UNARY LOADS
0142	REF	4	LAST	38	4213	4	0061	1		CS	BANKSET	
0143	REF	9	LAST	40	4214	5	0015	0		TS	BANKREG	
0144	REF	5	LAST	38	4215	2	0121	1	ADDRESS	INDEX	ADRLOC	INDEXABLE ADDRESS ROUTINE
0145					4216	4	0001	1		CS	1	PICK UP WHAT SHOULD BE THE NEXT ADDRESS
0146	REF	13	LAST	41	4217	1	0000	0		CCS	A	
0147	REF	1			4220	0	4354	1		TC	PUSHUP	NO ADDRESS MEANS TAKE OFF TOP OF STACK
0148	REF	1			4221	0	4353	0		TC	PUSHUP2	INACTIVE ADDRESS MEANS JUST PUSHUP
0149	REF	6	LAST	42	4222	3	0121	0		XCH	ADRLOC	SAVE ADDRESS WHILE WE INCREMENT ADRLOC
0150	REF	5	LAST	40	4223	6	4516	1		AD	ONE	
0151	REF	7	LAST	42	4224	3	0121	0		XCH	ADRLOC	NOW BRING IT BACK
0152	REF	10	LAST	40	4225	5	0076	0		TS	POLISH	
0153	REF	2	LAST	41	4226	3	4500	0		CAF	NEGSIGN	
0154	REF	11	LAST	41	4227	7	0020	1		MASK	CYR	
0155	REF	14	LAST	42	4230	1	0000	0		CCS	A	INDEXED OR NOT
0156	REF	2	LAST	34	4231	5	0114	0	BUGMPAC	XCADR	MPAC	
0157	REF	2	LAST	38	4232	0	4257	0		TC	NONINDEX	

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P0158 PROCEDURE FOR INDEXED ADDRESSES.

0159	REF	11	LAST	42	4233	3	0076	0	INDEX	XCH	POLISH	
0160	REF	1			4234	5	0021	1		TS	SR	SR NOW CONTAINS SUB-ADDRESS
0161	REF	12	LAST	42	4235	3	0020	0		XCH	CYR	SAVE ORDER CODE
0162	REF	1			4236	5	0022	1		TS	CYL	TO PREPARE FOR RESTORING
0163	REF	1			4237	0	4722	1		TC	TAG	
0164	REF	1			4240	2	0075	1		INDEX	TAG1	
0165	REF	1			4241	4	0046	1		CS	X1	INDEX REGISTERS ARE SUBTRACTIVE, ALA 70X
0166	REF	2	LAST	43	4242	6	0021	1		AD	SR	
0167	REF	12	LAST	43	4243	3	0076	0		XCH	POLISH	TS WOULD SKIP ON OVERFLOW
0168	REF	2	LAST	43	4244	3	0022	1		XCH	CYL	RESTORE OP CODE BITS IN CYR
0169	REF	13	LAST	43	4245	5	0020	0		TS	CYR	
0170	REF	13	LAST	43	4246	1	0076	1		CCS	POLISH	SEE IF BIT 15 SHOULD BE ZERO. IT SHOULD
0171	REF	3	LAST	42	4247	0	4257	0		TC	NONINDEX	IF THE ADDRESS IS LESS THAN ROUGHLY
0172	REF	1			4250	0	4362	1		TC	RELTOVAC +1	-1000D.
0173					4251	0	4253	1		TC	+2	
0174	REF	2	LAST	43	4252	0	4362	1		TC	RELTOVAC +1	QUICK ACTION ON THESE ZERO CASES.
0175	REF	2	LAST	40	4253	6	4517	0		AD	RELTEST	(-976D).
0176	REF	15	LAST	42	4254	1	0000	0		CCS	A	
0177	REF	14	LAST	43	4255	3	0076	0		XCH	POLISH	LESS THAN -1000. GO DIRECTLY TO
0178	REF	1			4256	0	4272	1		TC	SWADDR	SWITCHED-BANK ADDRESS ROUTINE.

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0179	REF	15	LAST	43	4257	4	0076	1	NONINDEX	CS	POLISH	GET 14 BIT ADDRESS
0180	REF	1			4260	6	4504	1		AD	ERATEST	SEE IF ERASABLE OR NOT
0181	REF	16	LAST	43	4261	1	0000	0		CCS	A	
0182	REF	3	LAST	43	4262	6	4517	0		AD	RELTEST	YES - SEE IF IN TEMPORARY BLOCK
0183	REF	1			4263	0	4300	0		TC	TEST2	
0184	REF	1			4264	6	5473	1		AD	STORTEST	NO - SEE IF STORE ADDRESS
0185	REF	17	LAST	44	4265	1	0000	0		CCS	A	
0186	REF	1			4266	0	4356	0		TC	PUSHUP3	YES - PUSHUP
0187					4267	0	4270	0		TC	+1	IN CASE THE STORED ADDRESS WAS 2000.
0188	REF	1			4270	3	4500	0		CAF	BIT15	
0189	REF	16	LAST	44	4271	6	0076	0		AD	POLISH	
0190	REF	10	LAST	42	4272	5	0015	0	SWADDR	TS	BANKREG	
0191	REF	17	LAST	44	4273	5	0076	0		TS	POLISH	
0192	REF	1			4274	7	4606	1		MASK	LOW10	
0193	REF	1			4275	6	4373	1		AD	6K	
0194	REF	2	LAST	40	4276	5	0062	0		TS	ADDRWD	
0195	REF	1			4277	0	4305	0		TC	JUMP	
0196	REF	18	LAST	44	4300	1	0000	0	TEST2	CCS	A	DOES THIS REFER TO THE TEMPORARY BLOCK
0197	REF	3	LAST	43	4301	0	4361	1		TC	RELTOVAC	ADDRESS IS RELATIVE TO VAC AREA.
0198					4302		03777	0	LOW11	OCT	3777	
0199	REF	18	LAST	44	4303	3	0076	0		XCH	POLISH	YES - FORM ADDRESS
0200	REF	3	LAST	44	4304	5	0062	0		TS	ADDRWD	
0201	REF	1			4305	3	4473	0	JUMP	CAF	THREE	LOOK AT LOW-ORDER 2 BITS IN 5 BIT CODE
0202	REF	14	LAST	43	4306	7	0020	1		MASK	CYR	
0203	REF	19	LAST	44	4307	1	0000	0		CCS	A	IF ZERO, LOAD NOW AND CALL IN BANK 0
0204					4310	0	4313	1		TC	+3	NON-ZERO - GO ON.
0205	REF	1			4311	0	4747	1		TC	DPSET	LOAD DP IF NECESSARY
0206	REF	11	LAST	44	4312	5	0015	0		TS	BANKREG	CALL IN BANK 0
0207	REF	6	LAST	41	4313	3	4720	0		CAF	LOW7	BITS 6-13 ARE GUARANTEED TO BE ZERO
0208	REF	15	LAST	44	4314	7	0020	1		MASK	CYR	
0209	REF	20	LAST	44	4315	2	0000	0		INDEX	A	
0210	REF	1			4316	0	4367	1		TC	INDJUMP	

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0211	REF	1		4317	3 0123 1	PUSHDOWN	XCH	PUSHLOC	NO STORE ADDRESS GIVEN - PUSH DOWN
0212	REF	4 LAST	44	4320	5 0062 0		TS	ADDRWD	STORED IN THE NEXT ENTRY
0213	REF	6 LAST	42	4321	2 0065 0		INDEX	MODE	
0214	REF	1		4322	6 4475 0		AD	NO.WDS	2 FOR DP, 6 FOR VECTORS, 3 FOR TP
0215	REF	2 LAST	45	4323	5 0123 1		TS	PUSHLOC	
0216	REF	7 LAST	45	4324	2 0065 0		INDEX	MODE	
0217	REF	2 LAST	44	4325	0 4431 0		TC	INDJUMP +34D	DISPATCH TO CORRECT STORE INSTRUCTION
0218	REF	8 LAST	37	4326	3 0001 0	PUSHUP1	XCH	Q	THE PUSH-UP ROUTINE IS CALLED UNDER THE
0219	REF	4 LAST	15	4327	5 0112 0		TS	COMPON	FOLLOWING CIRCUMSTANCES:
0220	REF	7 LAST	44	4330	3 4720 0		CAF	LOW7	1. NO ADDRESS WORD IS FOUND.
0221	REF	16 LAST	44	4331	7 0020 1		MASK	CYR	2. A STORE ADDRESS IS FOUND.
0222	REF	1		4332	6 4340 1		AD	-VXSC	OR 3. AN INACTIVE ADDRESS IS FOUND.
0223	REF	21 LAST	44	4333	1 0000 0		CCS	A	IF THE REQUESTING OPERATION CODE IS VXSC
0224	REF	1		4334	0 4345 1		TC	PUSHUPOK	THE MODE MUST BE SWITCHED BEFORE PUSHING
0225				4335	77776 1	MINUS1	OCT	-1	UP, SINCE VXSC DEMANDS AN ARGUMENT OF
0226	REF	2 LAST	45	4336	0 4345 1		TC	PUSHUPOK	THE OPPOSITE MODE (SCALAR NEEDS VECTOR,
0227	REF	8 LAST	45	4337	1 0065 0		CCS	MODE	ETC.)
0228				4340	77775 1	MINUS2	OCT	-2	UNUSED CCS BRANCHES.
0229				4341	77774 0	NEG3	OCT	-3	
0230	REF	1		4342	4 5502 1		CS	FOUR	
0231	REF	1		4343	6 4340 1		AD	NEG2	
0232				4344	0 4347 0		TC	+3	
0233	REF	9 LAST	45	4345	2 0065 0	PUSHUPOK	INDEX	MODE	DO PUSH-UP OPERATION.
0234	REF	2 LAST	45	4346	4 4475 1		CS	NO.WDS	2, 3, OR 6.
0235	REF	3 LAST	45	4347	6 0123 1		AD	PUSHLOC	
0236	REF	4 LAST	45	4350	5 0123 1		TS	PUSHLOC	
0237	REF	5 LAST	45	4351	5 0062 0		TS	ADDRWD	SET ADDRWD AND LEAVE ADDRESS IN A.
0238	REF	5 LAST	45	4352	0 0112 0		TC	COMPON	
0239	REF	1			4340 -VXSC	EQUALS	MINUS2		
0240	REF	3 LAST	39	4353	0 4364 1	PUSHUP2	TC	INCADR	SENT HERE ON INACTIVE ADDRESS
0241	REF	1		4354	0 4326 1	PUSHUP	TC	PUSHUP1	NO ADDRESS GIVEN SENDS US HERE
0242	REF	2 LAST	44	4355	0 4305 0		TC	JUMP	AND JUMP
0243	REF	8 LAST	42	4356	1 0121 1	PUSHUP3	CCS	ADRLOC	AN UNEXPECTED STORE ADDRESS SENDS US
0244	REF	9 LAST	45	4357	5 0121 0		TS	ADRLOC	HERE.
0245	REF	2 LAST	42	4360	0 4354 1		TC	PUSHUP	
0246	REF	19 LAST	44	4361	3 0076 0	RELTOVAC	XCH	POLISH	ADDRESS WAS LESS THAN 42, SO ADD
0247	REF	2 LAST	40	4362	6 0067 0		AD	FIXLOC	ADDRESS OF VAC AREA.
0248	REF	3 LAST	45	4363	0 4304 1		TC	JUMP -1	
0249	REF	6 LAST	42	4364	3 4516 1	INCADR	CAF	ONE	
0250	REF	10 LAST	45	4365	6 0121 0		AD	ADRLOC	
0251	REF	11 LAST	45	4366	5 0121 0		TS	ADRLOC	
0252	REF	9 LAST	45	4367	0 0001 0		TC	Q	

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0253	REF	1	4370	0	5612	1	IJUMP	TC	ITCF	INTERPRETIVE TRANSFER CONTROL
0254	REF	1	4371	0	5357	0		TC	VXSC1	VECTOR TIMES SCALAR
0255	REF	1	4372	0	5211	0		TC	VSU1	VECTOR SUBTRACT
0256	REF	1	4373	0	6000	1		TC	BMN1	BRANCH MINUS
0257	REF	1	4374	0	4700	1		TC	STZ1	STORE ZERO
0258	REF	1	4375	0	5623	0		TC	BOVF	BRANCH ON OVERFLOW
0259	REF	1	4376	0	4766	1		TC	DAD2	DOUBLE PRECISION ADD
0260	REF	1	4377	0	6014	1		TC	BHIZ1	BRANCH IF MAJOR PART ZERO
0261	REF	1	4400	0	4732	0		TC	DSU2	DP SUBTRACT
0262	REF	1	4401	0	4735	1		TC	DBSU	DP BACKWARDS SUBTRACT
0263	REF	1	4402	0	5061	0		TC	DMP2	DP MULTIPLY
0264	REF	1	4403	0	6402	1		TC	SHIFTL	TP LEFT SHIFT
0265	REF	1	4404	0	5144	0		TC	DDV	DP DIVIDE
0266	REF	1	4405	0	5141	0		TC	BDDV	DP BACKWARDS DIVIDE
0267	REF	1	4406	0	4776	0		TC	TRAD	TRIPLE PRECISION ADD
0268	REF	1	4407	0	6411	0		TC	TSLC	TP SHIFT LEFT AND COUNT
0269	REF	1	4410	0	5075	0		TC	SHIFTR1	TP SHIFT RIGHT
0270	REF	2 LAST 46	4411	0	5061	0		TC	DMP2	DP MULTIPLY AND THEN ROUND
0271	REF	1	4412	0	4773	0		TC	TSU1	TP SUBTRACT
0272	REF	1	4413	0	6213	1		TC	SIGN	AFFIX SIGN OF X TO MPAC
0273	REF	1	4414	0	5316	0		TC	MXV1	MATRIX TIMES VECTOR
0274	REF	1	4415	0	5306	1		TC	VXM1	VECTOR TIMES MATRIX
0275	REF	1	4416	0	5221	0		TC	VAD1	VECTOR ADD
0276	REF	1	4417	0	6010	0		TC	BZE1	BRANCH ON ZERO
0277	REF	1	4420	0	5214	0		TC	BVSU1	BACKWARDS VECTOR SUBTRACT
0278	REF	1	4421	0	5633	1		TC	VSRT1	VECTOR SHIFT RIGHT
0279	REF	1	4422	0	5630	1		TC	VSLT1	VECTOR SHIFT LEFT
0280	REF	1	4423	0	6004	0		TC	BPL1	BRANCH POSITIVE
0281	REF	1	4424	0	5234	1		TC	DOT1	VECTOR DOT PRODUCT
0282	REF	1	4425	0	5511	1		TC	CROSS1	VECTOR CROSS PRODUCT
0283	REF	1	4426	0	5505	1		TC	VPROJ1	VECTOR PROJECTION
0284	REF	1	4427	0	4552	1		TC	TTS1	
0285	REF	1	4430	0	4556	0		TC	DTS1	DP TRANSFER TO STORAGE
0286	REF	1	4431	0	4622	0		TC	VT51	VECTOR TS
0287	REF	1	4432	0	4204	0		TC	LOAD +1	LOADING
0288	REF	1			4373	6K			EQUALS IJUMP +3	BMN STARTS AT LOCATION 6000
0289	REF	2 LAST 46			4367	INDJUMP			EQUALS IJUMP -1	

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0290	REF	1	4433	0	6206	0	NONJUMP	TC	EXIT	
0291	REF	1	4434	0	6072	1		TC	AXT	ADDRESS TO INDEX TRUE
0292	REF	1	4435	0	6077	1		TC	LXA	LOAD INDEX FROM THE ADDRESS
0293	REF	1	4436	0	6104	1		TC	LXC	LOAD INDEX FROM ADDRESS COMPLEMENTED
0294	REF	1	4437	0	6110	1		TC	SXA	STORE INDEX IN THE ADDRESS
0295	REF	1	4440	0	6141	0		TC	XCHX	INDEX REGISTER EXCHANGE
0296	REF	1	4441	0	6134	1		TC	INCR	INDEX REGISTER INCREMENT
0297	REF	1	4442	0	6153	0		TC	XAD	INDEX REGISTER ADD FROM ERASABLE
0298	REF	1	4443	0	6147	0		TC	XSU	INDEX REGISTER SUBTRACT FROM ERASABLE
0299	REF	1	4444	0	6062	0		TC	AST	ADDRESS TO STEP TRUE
0300	REF	1	4445	0	6067	0		TC	AXC	ADDRESS TO INDEX COMPLEMENTED
0301	REF	1	4446	0	6115	1		TC	TIX	TRANSFER ON INDEX
0302	REF	1	4447	0	6352	0		TC	NOLOAD	LEAVE MPAC (OR VAC) LOADED
0303	REF	1	4450	0	6174	0		TC	ITA1	TRANSFER ADDRESS
0304	REF	1	4451	0	6434	1		TC	SWITCHEM	SWITCH AND TEST INSTRUCTIONS
0305	REF	1	4452	0	6341	1		TC	NEXT	LODON AND ITCQ
0306	REF	1	4453	0	7463	1	UNAJUMP	TC	TMOVE	FOR TP AS WELL
0307	REF	1	4454	0	4024	0		TC	VMOVE	
0308	REF	1	4455	0	7212	1		TC	UNIT	
0309	REF	1	4456	0	6261	1		TC	ABVAL1	ABVAL
0310	REF	1	4457	0	6226	1		TC	VSQ	SQUARE OF VECTOR LENGTH
0311	REF	1	4460	0	6316	0		TC	SSP	ABSOLUTE VALUE OF SCALAR
0312	REF	1	4461	0	6755	0		TC	ARCSIN1	
0313	REF	1	4462	0	6757	1		TC	ARCCOS1	
0314	REF	1	4463	0	6620	0		TC	SIN1	
0315	REF	1	4464	0	6622	1		TC	COS1	
0316	REF	1	4465	0	7453	1		TC	SQRTS	
0317	REF	1	4466	0	6323	0		TC	SQUARE	
0318	REF	1	4467	0	6325	0		TC	COMP	COMPLEMENT
0319	REF	1	4470	0	4024	0		TC	DMOVE	
0320	REF	1	4471	0	6336	1		TC	SMOVE	
0321	REF	1	4472	0	6160	0		TC	VDEF	VECTOR DEFINE

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0322			4473	00003 1	THREE	OCT	3	
0323			4474	00002 0		OCT	2	
0324			4475	00006 1	NO.WDS	OCT	6	3, 2, 6 ORDER IMPORTANT FOR PUSH-DOWN.
0325			4476	37777 1	POSMAX	OCT	37777	MUST BE 2 LOCATIONS BEFORE NEGMAX
0326			4477	00005 1	FIVE	OCT	5	
0327	REF	1		4477	LIMITS	EQUALS	POSMAX +1	USED BY CDU COUNTER ARITHMETIC PROGRAMS.
0328			4500	40000 0	BIT15	OCT	40000	
0329			4501	20000 0	BIT14	OCT	20000	
0330			4502	10000 0	BIT13	OCT	10000	
0331			4503	04000 0	BIT12	OCT	04000	
0332			4504	02000 0	BIT11	OCT	02000	
0333			4505	01000 0	BIT10	OCT	01000	
0334			4506	00400 0	BIT9	OCT	00400	
0335			4507	00200 0	BIT8	OCT	00200	
0336			4510	00100 0	BIT7	OCT	00100	
0337			4511	00040 0	BIT6	OCT	00040	
0338			4512	00020 0	BIT5	OCT	00020	
0339			4513	00010 0	BIT4	OCT	00010	
0340			4514	00004 0	BIT3	OCT	00004	
0341			4515	00002 0	BIT2	OCT	00002	
0342			4516	00001 0	BIT1	OCT	00001	
0343	REF	1		4502	QUARTER	EQUALS	BIT13	
0344	REF	1		4513	EIGHT	EQUALS	BIT4	
0345	REF	1		4516	ONE	EQUALS	BIT1	
0346	REF	2 LAST 38		4504	ERATEST	EQUALS	BIT11	
0347				5777	BUGBITS	EQUALS	5777	
0348				5777	ATSBITS	EQUALS	5777	
0349	REF	2 LAST 45		4340	NEG2	EQUALS	MINUS2	
0350	REF	3 LAST 45		4475	SIX	EQUALS	NO.WDS	
0351	REF	2 LAST 37		4335	NEG1	EQUALS	MINUS1	
0352	REF	2 LAST 44		4500	NEGSIGN	EQUALS	BIT15	
0353			4517	76057 1	RELTEST	DEC	-976	
0354			4520	57777 1	NEG1/2	2DEC	-.5	
C0354			4521	77777 0				
0355			4522	20000 0	POS1/2	2DEC	.5	
C0355			4523	00000 1				
0356	REF	1		4522	HALF	EQUALS	POS1/2	

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 13

[illegible]

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 14

0394	REF	20	LAST	45	4567	3	0076	0	DOBR	XCH	POLISH	DOES BRANCHES
0395	REF	1			4570	0	4602	1		TC	DOBR2	
0396	REF	5	LAST	42	4571	4	0061	1	EXIT2	CS	BANKSET	COMPLETE EXIT EXECUTION BY CALLING IN
0397	REF	12	LAST	44	4572	5	0015	0		TS	BANKREG	BANK OF OBJECT INTERPRETIVE PROGRAM.
0398	REF	12	LAST	45	4573	0	0121	0		TC	ADRLOC	
0399	REF	6	LAST	50	4574	4	0061	1	SWF/F	CS	BANKSET	BRANCHING TEST INSTRUCTION
0400	REF	13	LAST	50	4575	5	0015	0		TS	BANKREG	RETURNS HERE TO PICK UP BRANCHING ADDRESS
0401	REF	13	LAST	50	4576	2	0121	1		INDEX	ADRLOC	
0402					4577	3	0000	1		CAF	0	BRANCH IS ALWAYS TO FIXED.
0403	REF	1			4600	6	4335	0		AD	NEG1	UNDO YULISH INCREMENT.
0404	REF	3	LAST	48	4601	6	4500	0		AD	BIT15	
0405	REF	14	LAST	50	4602	5	0015	0	DOBR2	TS	BANKREG	
0406	REF	2	LAST	44	4603	7	4606	1		MASK	LOW10	
0407	REF	1			4604	6	4610	1		AD	6K-1	
0408	REF	1			4605	0	4001	1		TC	INTPRET +1	
0409					4606		01777	1	LOW10	OCT	1777	
0410					4607		00777	0	LOW9	OCT	777	
0411					4610		05777	0	6K-1	OCT	5777	
0412	REF	11	LAST	49	4611	3	0001	0	VCA1	XCH	Q	VECTOR CLEAR-AND-ADD ROUTINE
0413	REF	4	LAST	15	4612	5	0104	1		TS	TEM5	
0414	REF	3	LAST	42	4613	3	4500	0		CAF	NEGSIGN	
0415	REF	1			4614	0	4632	1		TC	VECMOVE	
0416	REF	5	LAST	50	4615	0	0104	1		TC	TEM5	
0417	REF	12	LAST	50	4616	3	0001	0	VCS1	XCH	Q	DP VECTOR CLEAR-AND-SUBTRACT
0418	REF	6	LAST	50	4617	5	0104	1		TS	TEM5	
0419	REF	1			4620	3	4713	0		CAF	NOOP	
0420	REF	2	LAST	42	4621	0	4614	0		TC	VCA1 +3	
0421	REF	12	LAST	49	4622	3	0062	0	VTS1	XCH	ADDRWD	TRANSFER TO STORAGE
0422	REF	1			4623	3	0070	0		XCH	VACLOC	EXCHANGE VACLOC AND ADDRWD AND DO AN
0423	REF	13	LAST	50	4624	5	0062	0		TS	ADDRWD	EFFECTIVE *CLEAR-AND-ADD*.
0424	REF	4	LAST	50	4625	3	4500	0		CAF	NEGSIGN	
0425	REF	2	LAST	50	4626	0	4632	1		TC	VECMOVE	
0426	REF	14	LAST	50	4627	3	0062	0		XCH	ADDRWD	RESTORE VACLOC
0427	REF	2	LAST	50	4630	5	0070	0		TS	VACLOC	
0428	REF	2	LAST	49	4631	0	4005	0		TC	NEWEQUN	THIS ONLY HAPPENS AT END OF EQUATION

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 15

0429	REF	2	LAST	15	4632	5	0102	1	VECMOVE	TS	TEM2	MOVES A DP VECTOR IN THE FASTEST WAY AVAILABLE. USED BY VCA, VCS, AND VTS.
0430	REF	15	LAST	50	4633	2	0062	1		INDEX	ADDRWD	
0431					4634	4	0005	0		CS	5	
0432	REF	3	LAST	51	4635	2	0102	0		INDEX	TEM2	
0433					4636	0	0000	1		0	0	COM FOR VCA, VTS. NOOP FOR VCS.
0434	REF	3	LAST	50	4637	2	0070	1		INDEX	VACLOC	
0435					4640	5	0005	1		TS	5	
0436	REF	16	LAST	51	4641	2	0062	1		INDEX	ADDRWD	
0437					4642	4	0004	1		CS	4	
0438	REF	4	LAST	51	4643	2	0102	0		INDEX	TEM2	
0439					4644	0	0000	1		0	0	
0440	REF	4	LAST	51	4645	2	0070	1		INDEX	VACLOC	
0441					4646	5	0004	0		TS	4	
0442	REF	17	LAST	51	4647	2	0062	1		INDEX	ADDRWD	
0443					4650	4	0003	0	OCT40003	CS	3	CONSTANT USED BY UNARY LOAD ROUTINE.
0444	REF	5	LAST	51	4651	2	0102	0		INDEX	TEM2	
0445					4652	0	0000	1		0	0	
0446	REF	5	LAST	51	4653	2	0070	1		INDEX	VACLOC	
0447					4654	5	0003	1		TS	3	
0448	REF	18	LAST	51	4655	2	0062	1		INDEX	ADDRWD	
0449					4656	4	0002	1	OCT40002	CS	2	
0450	REF	6	LAST	51	4657	2	0102	0		INDEX	TEM2	
0451					4660	0	0000	1		0	0	
0452	REF	6	LAST	51	4661	2	0070	1		INDEX	VACLOC	
0453					4662	5	0002	0		TS	2	
0454	REF	19	LAST	51	4663	2	0062	1		INDEX	ADDRWD	
0455					4664	4	0001	1	CSQ	CS	1	CONSTANT USED BY WAITLIST.
0456	REF	7	LAST	51	4665	2	0102	0		INDEX	TEM2	
0457					4666	0	0000	1		0	0	
0458	REF	7	LAST	51	4667	2	0070	1		INDEX	VACLOC	
0459					4670	5	0001	0		TS	1	
0460	REF	20	LAST	51	4671	2	0062	1		INDEX	ADDRWD	
0461					4672	4	0000	0		CS	0	
0462	REF	8	LAST	51	4673	2	0102	0		INDEX	TEM2	
0463					4674	0	0000	1		0	0	
0464	REF	8	LAST	51	4675	2	0070	1		INDEX	VACLOC	
0465					4676	5	0000	1		TS	0	
0466	REF	13	LAST	50	4677	0	0001	0		TC	Q	DONE

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 16

0467	REF	5	LAST	49	4700	3	5501	0	STZ1	CAF	ZERO	
0468	REF	21	LAST	51	4701	2	0062	1		INDEX	ADDRWD	
0469					4702	5	0000	1		TS	0	
0470	REF	7	LAST	50	4703	4	0061	1	RE-ENTER	CS	BANKSET	ROUTINE SIMILAR TO *DANZIG* EXCEPT THAT
0471	REF	15	LAST	50	4704	5	0015	0		TS	BANKREG	NO PUSHING DOWN IS DONE AT END OF EQU.
0472	REF	10	LAST	41	4705	1	0063	0		CCS	ORDER	IT IS USED BY MISCELLANEOUS INSTRUCTIONS
0473	REF	2	LAST	38	4706	0	4200	1		TC	LOWWD	AND BRANCHES WHICH FAILED
0474	REF	6	LAST	39	4707	2	0120	0		INDEX	LOC	IF WE HAD RETURNED DIRECTLY TO THE MAIN
0475					4710	4	0001	1		CS	1	
0476	REF	28	LAST	49	4711	1	0000	0		CCS	A	
0477	REF	2	LAST	38	4712	0	4065	0		TC	IPROC	IT IS USED BY BRANCH INSTRUCTIONS WHICH
0478					4713	3	0000	1	NOOP	NOOP		IN CASE THE FIRST ADDRESS WAS INACTIVE
0479	REF	14	LAST	50	4714	2	0121	1		INDEX	ADRLOC	SEE IF A LEFT-OVER ADDRESS
0480					4715	4	0001	1		CS	1	
0481	REF	29	LAST	52	4716	1	0000	0		CCS	A	
0482	REF	3	LAST	50	4717	0	4005	0		TC	NEWEQU	NO - START NEW EQUATION
0483					4720		00177	0	LOW7	OCT	177	
0484	REF	1			4721	0	4044	0		TC	STORADR	YES - MUST BE STORE ADDRESS
0485	REF	2	LAST	46	4701				STOR1	EQUALS	STZ1 +1	

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 17

0486	REF	17	LAST	45	4722	1	0020	1	TAG	CCS	CYR	SETS TAG1 ACCORDING TO SIGN BIT IN CYR
0487	REF	6	LAST	52	4723	3	5501	0		CAF	ZERO	
0488	REF	30	LAST	52	4724	1	0000	0		CCS	A	SKIP NEXT INS WITHOUT CHANGING Q
0489	REF	7	LAST	45	4725	3	4516	1		CAF	ONE	
0490	REF	3	LAST	45	4726	6	0067	0		AD	FIXLOC	INDEXES AND STEPS IN VAC AREA
0491	REF	2	LAST	43	4727	5	0075	0		TS	TAG1	
0492	REF	14	LAST	51	4730	0	0001	0		TC	Q	
0493	REF	8	LAST	49	4731		00077	1	TCBUF	ADRES	BUF	
0494	REF	2	LAST	44	4732	0	4747	1	DSU2	TC	DPSET	DP SUBTRACT
0495	REF	1			4733	0	5055	1		TC	ADDTOSUB	
0496	REF	2	LAST	46	4734	0	4767	0		TC	DAD2 +1	
0497	REF	3	LAST	53	4735	0	4747	1	DBSU	TC	DPSET	
0498	REF	1			4736	0	4742	1		TC	DACCOM	COMPLEMENT DP ACCUM
0499	REF	3	LAST	53	4737	0	4767	0		TC	DAD2 +1	AND ADD
0500	REF	12	LAST	49	4740	4	0117	1	MPACCOM	CS	MPAC +2	COMPLEMENT MPAC
0501	REF	13	LAST	53	4741	5	0117	0		TS	MPAC +2	
0502	REF	14	LAST	53	4742	4	0116	0	DACCOM	CS	MPAC +1	
0503	REF	15	LAST	53	4743	5	0116	1		TS	MPAC +1	
0504	REF	16	LAST	53	4744	4	0115	0		CS	MPAC	
0505	REF	17	LAST	53	4745	5	0115	1		TS	MPAC	
0506	REF	15	LAST	53	4746	0	0001	0		TC	Q	
0507	REF	8	LAST	53	4747	4	4516	0	DPSET	CS	ONE	SET UP DP MODE AND LOAD IF NECESSARY
0508	REF	10	LAST	45	4750	5	0065	1		TS	MODE	
0509	REF	7	LAST	42	4751	1	0066	0		CCS	NEWEQIND	
0510	REF	2	LAST	46	4752	0	4203	1		TC	LOAD	
0511	REF	16	LAST	53	4753	0	0001	0		TC	Q	
0512	REF	7	LAST	53	4754	4	5501	1	VECSET	CS	ZERO	SIMILARLY FOR VECTORS
0513	REF	11	LAST	53	4755	5	0065	1		TS	MODE	
0514	REF	8	LAST	53	4756	1	0066	0		CCS	NEWEQIND	
0515	REF	3	LAST	53	4757	0	4203	1		TC	LOAD	
0516	REF	17	LAST	53	4760	0	0001	0		TC	Q	
0517	REF	2	LAST	41	4761	4	5503	0	TPSET	CS	TWO	AND FOR TP
0518	REF	12	LAST	53	4762	5	0065	1		TS	MODE	
0519	REF	9	LAST	53	4763	1	0066	0		CCS	NEWEQIND	
0520	REF	4	LAST	53	4764	0	4203	1		TC	LOAD	
0521	REF	18	LAST	53	4765	0	0001	0		TC	Q	

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 18

0522	REF	4	LAST	53	4766	0	4747	1	DAD2	TC	DPSET	DOUBLE PRECISION ADD INSTRUCTION
0523	REF	4	LAST	53	4767	3	4772	1		CAF	DAD2 +4	
0524	REF	1			4770	0	5020	0		TC	DAD1	PROGRAM USES CLOSED SUBROUTINE DAD1,
0525	REF	1			4771	0	4024	0		TC	INT1	WITH ADDRESSES SET UP IN ADDRWD, TEM2
0526	REF	18	LAST	53	4772	00115	1	+4		ADRES	MPAC	
0527	REF	1			4773	0	4761	0	TSU1	TC	TPSET	TRIPLE PRECISION SUBTRACT INSTRUCTION
0528	REF	2	LAST	53	4774	0	5055	1		TC	ADDTOSUB	
0529	REF	2	LAST	46	4775	0	4777	1		TC	TRAD +1	
0530	REF	2	LAST	54	4776	0	4761	0	TRAD	TC	TPSET	TRIPLE PRECISION ADD INSTRUCTION
0531					4777	0	5001	0		TC	+2	
0532	REF	2	LAST	54	5000	0	4024	0		TC	INT1	
0533	REF	19	LAST	53	5001	3	0001	0	+3	XCH	Q	
0534	REF	7	LAST	50	5002	5	0104	1		TS	TEM5	
0535	REF	5	LAST	54	5003	3	4772	1		CAF	DAD2 +4	
0536	REF	9	LAST	51	5004	5	0102	1		TS	TEM2	
0537	REF	31	LAST	53	5005	2	0000	0		INDEX	A	
0538					5006	3	0002	0		XCH	2	
0539	REF	22	LAST	52	5007	2	0062	1		INDEX	ADDRWD	
0540					5010	6	0002	0		AD	2	
0541	REF	10	LAST	54	5011	2	0102	0		INDEX	TEM2	
0542					5012	5	0002	0		TS	2	AGAIN SKIPPING, AS IN DAD1
0543	REF	8	LAST	53	5013	3	5501	0		CAF	ZERO	
0544	REF	11	LAST	54	5014	2	0102	0		INDEX	TEM2	
0545					5015	6	0001	0		AD	1	
0546	REF	2	LAST	54	5016	0	5023	0		TC	DAD1 +3	FINISH IN DAD1
0547	REF	8	LAST	54	5017	0	0104	1		TC	TEM5	AND RETURN

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 19

0548	REF	12	LAST	54	5020	5	0102	1	DAD1	TS	TEM2	DOUBLE PRECISION ADD ROUTINE
0549	REF	13	LAST	55	5021	2	0102	0		INDEX	TEM2	POLYNOMIAL EVALUATOR ENTERS HERE.
0550					5022	3	0001	0		XCH	1	
0551	REF	23	LAST	54	5023	2	0062	1	+3	INDEX	ADDRWD	
0552					5024	6	0001	0		AD	1	
0553	REF	14	LAST	55	5025	2	0102	0		INDEX	TEM2	
0554					5026	5	0001	0		TS	1	SKIPS IF OVERFLOW WITH COUNT IN A
0555	REF	9	LAST	54	5027	3	5501	0		CAF	ZERO	NO OVERFLOW IF HERE
0556	REF	15	LAST	55	5030	2	0102	0		INDEX	TEM2	ARRIVE HERE WITH 1 OR -1 IN A IF OVERFLO
0557					5031	6	0000	1		AD	0	
0558	REF	24	LAST	55	5032	2	0062	1		INDEX	ADDRWD	
0559					5033	6	0000	1		AD	0	
0560	REF	16	LAST	55	5034	2	0102	0		INDEX	TEM2	
0561					5035	5	0000	1		TS	0	AND AGAIN SKIP IF OVERFLOW
0562	REF	20	LAST	54	5036	0	0001	0		TC	Q	EXIT IF NONE
0563	REF	1			5037	5	0122	0		TS	OVFIND	SAVE ANY OVERFLOW FOR BOV TESTING
0564	REF	21	LAST	55	5040	0	0001	0		TC	Q	
0565	REF	2	LAST	15	5041	5	0105	0	8TO2	TS	TEM8	MOVES THE DP WORD LOCATED AT THE ADDRESS
0566	REF	32	LAST	54	5042	2	0000	0		INDEX	A	IN A TO THE ADDRESS IN TEM2
0567					5043	4	0000	0		CS	0	
0568	REF	33	LAST	55	5044	4	0000	0		CS	A	
0569	REF	17	LAST	55	5045	2	0102	0		INDEX	TEM2	
0570					5046	5	0000	1		TS	0	
0571	REF	3	LAST	55	5047	2	0105	1		INDEX	TEM8	
0572					5050	4	0001	1		CS	1	
0573	REF	34	LAST	55	5051	4	0000	0		CS	A	
0574	REF	18	LAST	55	5052	2	0102	0		INDEX	TEM2	
0575					5053	5	0001	0		TS	1	
0576	REF	22	LAST	55	5054	0	0001	0		TC	Q	
0577	REF	25	LAST	55	5055	3	0062	0	ADDTOSUB	XCH	ADDRWD	BY PUTTING THE APPROPRIATE BITS IN
0578	REF	1			5056	6	5777	0		AD	ATSBITS	ADDRWD, DAD1 DOES A DOUBLE SUBTRACT IN-
0579	REF	26	LAST	55	5057	5	0062	0		TS	ADDRWD	STEAD OF A DOUBLE ADD.
0580	REF	23	LAST	55	5060	0	0001	0		TC	Q	

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 20

0581	REF	5	LAST	54	5061	0	4747	1	DMP2	TC	DPSET	DP MULTIPLY (AND ROUND) ROUTINE
0582	REF	27	LAST	55	5062	3	0062	0		XCH	ADDRWD	
0583	REF	1			5063	6	5777	0		AD	BUGBITS	MAKE EXTENDED CODE ADDRESS.
0584	REF	4	LAST	15	5064	5	0103	0	DSQ2	TS	TEM4	ENTRY FROM DSQ ROUTINE.
0585	REF	6	LAST	54	5065	3	4772	1		XCH	DAD2 +4	C(DAD2 +4) = TC MPAC
0586	REF	1			5066	0	5102	1		TC	DMP1	EXECUTE MULTIPLY AT DMP1, THEN EXIT
0587	REF	1			5067	0	4524	0		TC	TCS1	VIA TCS1 TO MOVE (BUF TO BUF+2)
A0588												INTO (MPAC TO MPAC+2).
0589	REF	18	LAST	53	5070	4	0020	1	OCT40020	CS	CYR	
0590	REF	19	LAST	56	5071	1	0020	1		CCS	CYR	
0591	REF	7	LAST	56	5072	3	4772	1	MPACRND	CAF	DAD2 +4	SET UP ROUND SUBROUTINE TO ROUND MPAC.
0592	REF	1			5073	0	5443	1		TC	PREROUND +1	
0593	REF	1			5074	0	4024	0		TC	DANZIG	
0594	REF	6	LAST	56	5075	0	4747	1	SHIFTR1	TC	DPSET	TSRT INSTRUCTION.
0595	REF	16	LAST	52	5076	5	0015	0		TS	BANKREG	SUBROUTINE IN BANK 0
0596	REF	1			5077	0	6042	1		TC	TRUE2	GET INTEGER ADDRESS BACK
0597	REF	1			5100	0	6232	1		TC	SHIFTR -1	WITH DECREMENTED COUNT IN A.
0598	REF	2	LAST	56	5101	0	4024	0		TC	DANZIG	

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 21

0599	REF	19	LAST	55	5102	5	0102	1	DMP1	TS	TEM2	GENERAL PURPOSE DP MULTIPLICATION
0600	REF	20	LAST	57	5103	2	0102	0		INDEX	TEM2	POLYNOMIAL ENTERS HERE.
0601					5104	4	0001	1		CS	1	
0602	REF	1			5105	5	0034	0		TS	OVCTR	-N1 TO OVCTR
0603	REF	5	LAST	56	5106	2	0103	1		INDEX	TEM4	
0604					5107	4	0001	1		MP	1	-M1N1
0605	REF	2	LAST	57	5110	3	0034	0		XCH	OVCTR	-U(M1N1) TO OVCTR, -N1 TO A
0606	REF	6	LAST	57	5111	2	0103	1		INDEX	TEM4	
0607					5112	4	0000	0		MP	0	-MON1
0608	REF	3	LAST	57	5113	3	0034	0		XCH	OVCTR	-U(MON1) TO OVCTR, -U(M1N1) TO A
0609	REF	1			5114	6	0003	1		AD	LP	MAYBE INCREMENT -U(MON1) IN OVCTR
0610	REF	9	LAST	53	5115	3	0100	0		XCH	BUF +1	-L(MON1)-U(M1N1) TO BUF+1
0611	REF	21	LAST	57	5116	2	0102	0		INDEX	TEM2	
0612					5117	4	0000	0		CS	0	
0613	REF	10	LAST	57	5120	5	0101	1		TS	BUF +2	-NO TO BUF+2
0614	REF	7	LAST	57	5121	2	0103	1		INDEX	TEM4	
0615					5122	4	0001	1		MP	1	-M1NO
0616	REF	4	LAST	57	5123	3	0034	0		XCH	OVCTR	-U(M1NO) TO OVCTR, -U(MON1) TO A
0617	REF	11	LAST	57	5124	3	0100	0		XCH	BUF +1	-U(MON1) TO BUF+1, -L(MON1)-U(M1N1) TO A
0618	REF	2	LAST	57	5125	6	0003	1		AD	LP	MAYBE INCREMENT -U(M1NO) IN OVCTR
0619	REF	12	LAST	57	5126	3	0101	1		XCH	BUF +2	-L(M1NO)-L(MON1)-U(M1N1) TO BUF+2, -NO T
C0620												O A
0621	REF	8	LAST	57	5127	2	0103	1		INDEX	TEM4	
0622					5130	4	0000	0		MP	0	-MONO
0623	REF	5	LAST	57	5131	3	0034	0		XCH	OVCTR	-U(MONO) TO OVCTR, -U(M1NO) TO A
0624	REF	3	LAST	57	5132	6	0003	1		AD	LP	
0625	REF	13	LAST	57	5133	3	0100	0		XCH	BUF +1	
0626	REF	14	LAST	57	5134	6	0100	0		AD	BUF +1	
0627	REF	15	LAST	57	5135	3	0100	0		XCH	BUF +1	
0628	REF	6	LAST	57	5136	3	0034	0		XCH	OVCTR	
0629	REF	16	LAST	57	5137	5	0077	1		TS	BUF	
0630	REF	24	LAST	55	5140	0	0001	0		TC	Q	

R0631 TIMING: 86 MC +-2 OR 1.032 MS +-0.024

30 WORDS

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 22

0633	REF	7	LAST	56	5141	0	4747	1	BDDV	TC	DPSET	BACKWARDS DP DIVIDE
0634	REF	9	LAST	53	5142	3	4516	1		CAF	ONE	SET SWITCH
0635					5143	0	5145	1		TC	+2	AND GO ON AS USUAL
0636	REF	8	LAST	58	5144	0	4747	1	DDV	TC	DPSET	REGULAR DP DIVIDE
0637	REF	5	LAST	15	5145	5	0110	1		TS	DVSW	DPSET RETURNS WITH 0 IN A
0638	REF	1			5146	3	5553	1		CAF	LDANZIG	RETURN TO DANZIG
0639	REF	1			5147	5	0076	0		TS	TEMQ3	
0640	REF	1			5150	3	4731	0		CAF	TCBUF	
0641	REF	22	LAST	57	5151	5	0102	1		TS	TEM2	
0642	REF	28	LAST	56	5152	3	0062	0		XCH	ADDRWD	
0643	REF	1			5153	0	5041	1		TC	8TO2	X,X+1 INTO BUF, BUF+1
0644	REF	10	LAST	55	5154	3	5501	0		CAF	ZERO	
0645	REF	17	LAST	56	5155	5	0015	0		TS	BANKREG	CALL IN BANK 0
0646	REF	1			5156	0	6776	1		TC	DDV0	TO BANK 0 PORTION
0647	REF	25	LAST	57	5157	3	0001	0	DMP	XCH	Q	DP MULTIPLY ROUTINE WHICH CAN BE CALLED
0648	REF	9	LAST	54	5160	5	0104	1		TS	TEM5	BY TC DMP, FOLLOWED BY A WORD CONTAINING
0649	REF	35	LAST	55	5161	2	0000	0		INDEX	A	THE ADDRESS OF THE MULTIPLIER WITH
0650					5162	3	0000	1		CAF	0	BITS IN THE ORDER CODE TO CALL IN MP
0651	REF	9	LAST	57	5163	5	0103	0		TS	TEM4	IN THE EXTENDED CODE (UNKNOWN AS YET)
0652	REF	8	LAST	56	5164	3	4772	1		CAF	DAD2 +4	
0653	REF	2	LAST	56	5165	0	5102	1		TC	DMP1	
0654	REF	2	LAST	56	5166	0	4524	0		TC	TCS1	
0655	REF	10	LAST	58	5167	2	0104	0		INDEX	TEM5	TIME IS 120 MC+-2, OR ABOUT 1.44 MS
0656					5170	0	0001	0		TC	1	RETURN TO INSTRUCTION AFTER ADDRESS WORD
0657	REF	26	LAST	58	5171	3	0001	0	DAD	XCH	Q	DP ADD ROUTINE WORKING JUST AS MP ABOVE
0658	REF	11	LAST	58	5172	5	0104	1		TS	TEM5	HERE, HOWEVER, ONLY *ADRES X* IS NEEDED
0659	REF	36	LAST	58	5173	2	0000	0		INDEX	A	SINCE AD IS PART OF THE REGULAR CODE
0660					5174	3	0000	1		CAF	0	
0661	REF	29	LAST	58	5175	5	0062	0		TS	ADDRWD	
0662	REF	9	LAST	58	5176	3	4772	1		CAF	DAD2 +4	
0663	REF	3	LAST	54	5177	0	5020	0		TC	DAD1	
0664	REF	12	LAST	58	5200	2	0104	0		INDEX	TEM5	
0665					5201	0	0001	0		TC	1	TIME IS 48+-2 MC OR 576 MICRO-SEC.

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0666	REF	27	LAST	58	5202	3	0001	0	VACCOM	XCH	Q	COMPLEMENT THE APPROPRIATE VAC
0667	REF	13	LAST	58	5203	5	0104	1		TS	TEM5	
0668	REF	9	LAST	51	5204	4	0070	1		CS	VACLOC	
0669					5205	4	0000	0		COM		
0670	REF	30	LAST	58	5206	3	0062	0		XCH	ADDRWD	
0671	REF	10	LAST	58	5207	5	0103	0		TS	TEM4	
0672	REF	1			5210	0	4620	1		TC	VCS1 +2	
0673	REF	1			5211	0	4754	0	VSU1	TC	VECSET	DP VECTOR SUBTRACT
0674	REF	3	LAST	54	5212	0	5055	1		TC	ADDTOSUB	
0675	REF	2	LAST	46	5213	0	5222	0		TC	VAD1 +1	USES VAD ROUTINE WITH SUBS
0676	REF	2	LAST	59	5214	0	4754	0	BVSU1	TC	VECSET	DP VECTOR BACKWARDS SUBTRACT
0677	REF	1			5215	0	5202	1		TC	VACCOM	JUST COMPLEMENT VAC
0678	REF	11	LAST	59	5216	3	0103	0		XCH	TEM4	
0679	REF	31	LAST	59	5217	5	0062	0		TS	ADDRWD	
0680	REF	3	LAST	59	5220	0	5222	0		TC	VAD1 +1	AND ADD
0681	REF	3	LAST	59	5221	0	4754	0	VAD1	TC	VECSET	
0682	REF	10	LAST	59	5222	3	0070	0		XCH	VACLOC	DP VECTOR ADD
0683	REF	11	LAST	59	5223	5	0070	0		TS	VACLOC	
0684	REF	4	LAST	58	5224	0	5020	0		TC	DAD1	
0685	REF	1			5225	0	5242	0		TC	AD2	
0686	REF	1			5226	0	5412	0		TC	INCRT2	
0687	REF	5	LAST	59	5227	0	5020	0		TC	DAD1	
0688	REF	2	LAST	59	5230	0	5242	0		TC	AD2	
0689	REF	2	LAST	59	5231	0	5412	0		TC	INCRT2	
0690	REF	6	LAST	59	5232	0	5020	0		TC	DAD1	
0691	REF	3	LAST	54	5233	0	4024	0		TC	INT1	

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0692	REF	4	LAST	59	5234	0	4754	0	DOT1	TC	VECSET	DP DOT PRODUCT ROUTINE
0693	REF	1			5235	0	5246	1		TC	DOT2	
0694	REF	1			5236	0	4740	0		TC	MPACCOM	
0695	REF	10	LAST	58	5237	4	4516	0	DPEXIT	CS	ONE	CHANGE MODE TO DOUBLE-PRECISION
0696	REF	13	LAST	53	5240	5	0065	1		TS	MODE	
0697	REF	3	LAST	56	5241	0	4024	0		TC	DANZIG	
0698	REF	32	LAST	59	5242	3	0062	0	AD2	XCH	ADDRWD	
0699	REF	3	LAST	53	5243	6	5503	1		AD	TWO	
0700	REF	33	LAST	60	5244	5	0062	0		TS	ADDRWD	
0701	REF	28	LAST	59	5245	0	0001	0		TC	Q	
0702	REF	4	LAST	60	5246	3	5503	1	DOT2	XCH	TWO	SUBROUTINE DOT2 COMPUTES THE TRIPLE-
0703	REF	6	LAST	14	5247	5	0064	0		TS	TEM11	
0704	REF	2	LAST	58	5250	3	4731	0		XCH	TCBUF	SIGN, IN MPAC TO MPAC+2.
0705	REF	34	LAST	60	5251	3	0062	0		XCH	ADDRWD	
0706	REF	2	LAST	56	5252	6	5777	0		AD	BUGBITS	
0707	REF	12	LAST	59	5253	5	0103	0		TS	TEM4	
0708	REF	29	LAST	60	5254	3	0001	0		XCH	Q	
0709	REF	4	LAST	55	5255	5	0105	0		TS	TEM8	
0710	REF	12	LAST	59	5256	3	0070	0		XCH	VACLOC	
0711	REF	13	LAST	60	5257	5	0070	0		TS	VACLOC	
0712	REF	3	LAST	58	5260	0	5102	1		TC	DMP1	
0713	REF	17	LAST	57	5261	3	0077	1		XCH	BUF	
0714	REF	19	LAST	54	5262	5	0115	1		TS	MPAC	
0715	REF	18	LAST	60	5263	3	0100	0		XCH	BUF +1	
0716	REF	20	LAST	60	5264	5	0116	1		TS	MPAC +1	
0717	REF	19	LAST	60	5265	3	0101	1		XCH	BUF +2	
0718	REF	21	LAST	60	5266	5	0117	0		TS	MPAC +2	
0719	REF	1			5267	0	5302	0		TC	INCRT4	
0720	REF	3	LAST	59	5270	0	5412	0		TC	INCRT2	
0721	REF	4	LAST	60	5271	0	5102	1		TC	DMP1	
0722	REF	3	LAST	54	5272	0	5001	0		TC	TRAD +3	
0723	REF	2	LAST	60	5273	0	5302	0		TC	INCRT4	
0724	REF	14	LAST	60	5274	3	0070	0		XCH	VACLOC	
0725	REF	15	LAST	60	5275	5	0070	0		TS	VACLOC	
0726	REF	2	LAST	45	5276	6	5502	0		AD	FOUR	
0727	REF	5	LAST	60	5277	0	5102	1		TC	DMP1	
0728	REF	4	LAST	60	5300	0	5001	0		TC	TRAD +3	
0729	REF	5	LAST	60	5301	0	0105	0		TC	TEM8	

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0730	REF	13	LAST	60	5302	3	0103	0	INCRT4	XCH	TEM4	
0731	REF	7	LAST	60	5303	6	0064	0		AD	TEM11	
0732	REF	14	LAST	61	5304	5	0103	0		TS	TEM4	
0733	REF	30	LAST	60	5305	0	0001	0		TC	Q	
0734	REF	5	LAST	60	5306	0	4754	0	VXM1	TC	VECSET	DP VECTOR TIMES MATRIX
0735	REF	35	LAST	60	5307	4	0062	1		CS	ADDRWD	
0736	REF	4	LAST	15	5310	5	0107	1		TS	TEM10	
0737	REF	5	LAST	60	5311	3	5503	1		XCH	TWO	
0738	REF	5	LAST	15	5312	5	0106	0		TS	TEM9	
0739	REF	1			5313	3	4475	0		XCH	SIX	
0740	REF	2	LAST	60	5314	0	5247	0		TC	DOT2 +1	
0741	REF	1			5315	0	5324	1		TC	MXV2	REST OF OPERATION USES MXV ROUTINE
0742	REF	6	LAST	61	5316	0	4754	0	MXV1	TC	VECSET	MATRIX TIMES DP VECTOR
0743	REF	36	LAST	61	5317	4	0062	1		CS	ADDRWD	
0744	REF	5	LAST	61	5320	5	0107	1		TS	TEM10	
0745	REF	2	LAST	61	5321	3	4475	0		XCH	SIX	PROGRAM USES DOT PRODUCT ROUTINES TO
0746	REF	6	LAST	61	5322	5	0106	0		TS	TEM9	
0747	REF	3	LAST	61	5323	0	5246	1		TC	DOT2	
0748	REF	1			5324	3	5475	1	MXV2	CAF	K2	USES VBUF
0749	REF	1			5325	0	5347	1		TC	STORDAC	
0750	REF	6	LAST	61	5326	4	0107	0		CS	TEM10	
0751	REF	7	LAST	61	5327	6	0106	0		AD	TEM9	
0752	REF	7	LAST	61	5330	5	0107	1		TS	TEM10	
0753	REF	37	LAST	61	5331	5	0062	0		TS	ADDRWD	
0754	REF	4	LAST	61	5332	0	5250	0		TC	DOT2 +2	
0755	REF	2	LAST	61	5333	3	5476	1		CAF	K2 +1	
0756	REF	2	LAST	61	5334	0	5347	1		TC	STORDAC	
0757	REF	8	LAST	61	5335	3	0107	1		XCH	TEM10	
0758	REF	8	LAST	61	5336	6	0106	0		AD	TEM9	
0759	REF	38	LAST	61	5337	5	0062	0		TS	ADDRWD	
0760	REF	5	LAST	61	5340	0	5250	0		TC	DOT2 +2	

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0761	REF	3	LAST	61	5341	3	5475	1	CAF	K2	
0762	REF	39	LAST	61	5342	5	0062	0	TS	ADDRWD	
0763	REF	3	LAST	60	5343	6	5502	0	AD	FOUR	
0764	REF	3	LAST	61	5344	0	5347	1	TC	STORDAC	
0765	REF	3	LAST	50	5345	0	4611	0	TC	VCA1	
0766	REF	4	LAST	60	5346	0	4024	0	TC	DANZIG	
0767	REF	15	LAST	61	5347	5	0103	0	STORDAC TS	TEM4	SUBROUTINE TO STORE MPAC, MPAC+1 IN ADDRESSES INDICATED BY C(A) AT ENTRY.
0768	REF	22	LAST	60	5350	4	0115	0	CS	MPAC	
0769	REF	16	LAST	62	5351	2	0103	1	INDEX	TEM4	
0770					5352	5	0000	1	TS	0	
0771	REF	23	LAST	62	5353	4	0116	0	CS	MPAC +1	
0772	REF	17	LAST	62	5354	2	0103	1	INDEX	TEM4	
0773					5355	5	0001	0	TS	1	
0774	REF	31	LAST	61	5356	0	0001	0	TC	Q	
0775	REF	10	LAST	53	5357	1	0066	0	VXSC1 CCS	NEWEQIND	DP VECTOR TIMES SCALAR LOAD INSTRUCTION IF NOT, WHICH MODE ARE WE IN
0776	REF	7	LAST	61	5360	0	4754	0	TC	VECSET	
0777	REF	14	LAST	60	5361	1	0065	0	CCS	MODE	
0778					5362		00007	0	SEVEN OCT	7	
0779					5363		77762	1	MINUS13 DEC	-13	
0780	REF	1			5364	0	5370	0	TC	VECCHECK	
0781	REF	40	LAST	62	5365	3	0062	0	XCH	ADDRWD	
0782	REF	3	LAST	60	5366	6	5777	0	AD	BUGBITS	TO CALL IN MP
0783	REF	1			5367	0	5372	1	TC	VXSC2	
0784	REF	4	LAST	62	5370	0	4611	0	VECCHECK TC	VCA1	USE ADDRWD TO LOAD VECTOR
0785	REF	1			5371	3	4231	0	CAF	BUGMPAC	

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0786	REF	18	LAST	62	5372	5	0103	0	VXSC2	TS	TEM4	
0787	REF	16	LAST	60	5373	4	0070	1		CS	VACLOC	
0788					5374	4	0000	0		COM		
0789	REF	6	LAST	60	5375	0	5102	1		TC	DMP1	
0790	REF	2	LAST	56	5376	0	5442	0		TC	PREROUND	
0791	REF	1			5377	0	5466	0		TC	STB	
0792	REF	4	LAST	60	5400	0	5412	0		TC	INCRT2	
0793	REF	7	LAST	63	5401	0	5102	1		TC	DMP1	
0794	REF	1			5402	0	5444	0		TC	ROUND	
0795	REF	2	LAST	63	5403	0	5466	0		TC	STB	
0796	REF	5	LAST	63	5404	0	5412	0		TC	INCRT2	
0797	REF	8	LAST	63	5405	0	5102	1		TC	DMP1	
0798	REF	2	LAST	63	5406	0	5444	0		TC	ROUND	
0799	REF	3	LAST	63	5407	0	5466	0		TC	STB	
0800	REF	11	LAST	58	5410	4	5501	1	ZEROEXIT	CS	ZERO	CHANGE MODE TO VECTOR
0801	REF	1			5411	0	5240	1		TC	DPEXIT +1	
0802	REF	5	LAST	62		4024			INT1	EQUALS	DANZIG	
0803	REF	23	LAST	58	5412	3	0102	1	INCRT2	XCH	TEM2	
0804	REF	6	LAST	61	5413	6	5503	1		AD	TWO	
0805	REF	24	LAST	63	5414	5	0102	1		TS	TEM2	
0806	REF	32	LAST	62	5415	0	0001	0		TC	Q	

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0807	REF	24	LAST	62	5416	3	0117	0	SHORTMP	XCH	MPAC +2	MULTIPLY THE CONTENTS OF MPAC,MPAC+1, MPAC+2 BY THE SINGLE PRECISION NUMBER ARRIVING IN A.
0808					5417	2	5777	1		EXTEND		
0809	REF	25	LAST	64	5420	4	0117	1		MP	MPAC +2	
0810	REF	26	LAST	64	5421	3	0117	0		XCH	MPAC +2	
0811	REF	27	LAST	64	5422	3	0116	1	SHORTMP2	XCH	MPAC +1	FASTER BUT SLOPPIER VERSION FOR DP
0812					5423	2	5777	1		EXTEND		
0813	REF	28	LAST	64	5424	4	0116	0		MP	MPAC +1	
0814	REF	7	LAST	57	5425	5	0034	0		TS	OVCTR	
0815	REF	4	LAST	57	5426	3	0003	1		XCH	LP	THE SHORTMP2 RESULT WILL BE OFF IN THE LAST BIT IF THIS AD OVERFLOWS.
0816	REF	29	LAST	64	5427	6	0117	0		AD	MPAC +2	
0817	REF	30	LAST	64	5430	3	0117	0		XCH	MPAC +2	
0818	REF	31	LAST	64	5431	3	0115	1		XCH	MPAC	
0819					5432	2	5777	1		EXTEND		ARGUMENT IN OVCTR UPON EXIT
0820	REF	32	LAST	64	5433	4	0116	0		MP	MPAC +1	
0821	REF	8	LAST	64	5434	3	0034	0		XCH	OVCTR	
0822	REF	5	LAST	64	5435	6	0003	1		AD	LP	
0823	REF	33	LAST	64	5436	3	0116	1		XCH	MPAC +1	
0824	REF	9	LAST	64	5437	3	0034	0		XCH	OVCTR	
0825	REF	34	LAST	64	5440	5	0115	1		TS	MPAC	
0826	REF	33	LAST	63	5441	0	0001	0		TC	Q	
0827	REF	3	LAST	60	5442	3	4731	0	PREROUND	CAF	TCBUF	
0828	REF	6	LAST	60	5443	5	0105	0		TS	TEM8	
0829	REF	12	LAST	63	5444	3	5501	0	ROUND	CAF	ZERO	ROUND THE TRIPLE-PRECISION NUMBER WHOSE ADDRESS IS IN TEM8 TO DOUBLE-PRECISION, SETING THE LOWEST ORDER OF THE THREE WORDS TO ZERO IN THE PROCESS
0830	REF	7	LAST	64	5445	2	0105	1		INDEX	TEM8	
0831					5446	3	0002	0		XCH	2	
0832					5447	6	0000	1		DOUBLE		
0833	REF	10	LAST	64	5450	5	0034	0		TS	OVCTR	DONE IF DOESNT SKIP
0834	REF	34	LAST	64	5451	0	0001	0		TC	Q	
0835	REF	8	LAST	64	5452	2	0105	1		INDEX	TEM8	
0836					5453	6	0001	0		AD	1	
0837	REF	9	LAST	64	5454	2	0105	1		INDEX	TEM8	
0838					5455	5	0001	0		TS	1	
0839	REF	35	LAST	64	5456	0	0001	0		TC	Q	
0840	REF	10	LAST	64	5457	2	0105	1		INDEX	TEM8	
0841					5460	6	0000	1		AD	0	
0842	REF	11	LAST	64	5461	2	0105	1		INDEX	TEM8	
0843					5462	5	0000	1		TS	0	ANY CARRIES BEYOND THIS POINT ARE OVERFLOW
0844	REF	36	LAST	64	5463	0	0001	0		TC	Q	
0845	REF	2	LAST	55	5464	5	0122	0		TS	OVFIND	
0846	REF	37	LAST	64	5465	0	0001	0		TC	Q	

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0847	REF	20	LAST	60	5466	4	0077	0	STB	CS	BUF	
0848	REF	25	LAST	63	5467	2	0102	0		INDEX	TEM2	
0849					5470	5	0000	1		TS	0	
0850	REF	21	LAST	65	5471	4	0100	1		CS	BUF +1	
0851	REF	26	LAST	65	5472	2	0102	0		INDEX	TEM2	
0852					5473	5	0001	0		TS	1	
0853	REF	38	LAST	64	5474	0	0001	0		TC	Q	
0854	REF	13	LAST	15	5475	0	0071	1	K2	0	VBUF	
0855	REF	14	LAST	65	5476	0	0073	0		0	VBUF +2	
0856	REF	15	LAST	65	5477	0	0075	0		0	VBUF +4	
0857	REF	4	LAST	62					5473	STORTEST	EQUALS	K2 -2
0858					5500		00002	0	SEQ	OCT	2	
0859					5501		00000	1	ZERO	OCT	0	
0860					5502		00004	0	FOUR	OCT	4	
0861					5503		00002	0	TWO	OCT	2	
0862					5504		77777	0	NEGO	OCT	-0	
0863	REF	8	LAST	62	5505	0	4754	0	VPROJ1	TC	VECSET	VECTOR PROJECT
0864	REF	6	LAST	61	5506	0	5246	1		TC	DOT2	LEAVES (VAC,X)VAC IN VAC
0865	REF	2	LAST	53	5507	0	4742	1		TC	DACCOM	
0866	REF	2	LAST	62	5510	0	5371	1		TC	VXSC2 -1	FINISH IN VXSC (USING MPAC)
0867	REF	9	LAST	65	5511	0	4754	0	CROSS1	TC	VECSET	DP VECTOR CROSS PRODUCT (BOTH WAYS)
0868	REF	4	LAST	64	5512	3	4731	0		XCH	TCBUF	
0869	REF	41	LAST	62	5513	3	0062	0		XCH	ADDRWD	
0870	REF	4	LAST	62	5514	6	5777	0		AD	BUGBITS	AGAIN FOR MP
0871	REF	1			5515	5	0104	1		TS	BASE	
0872	REF	7	LAST	63	5516	6	5503	1		AD	TWO	WHERE THE VECTOR X IS THAT ADDRESSED
0873	REF	19	LAST	63	5517	5	0103	0		TS	TEM4	BY THE ORDER, AND V IS C(VAC).
0874	REF	8	LAST	65	5520	3	5503	1		XCH	TWO	

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0875	REF	1		5521	5 0107 1	LUP	TS	IND	
0876	REF	2 LAST	66	5522	2 0107 0		INDEX	IND	
0877	REF	1		5523	3 5500 1		XCH	SEQ	
0878	REF	17 LAST	63	5524	6 0070 0		AD	VACLOC	
0879	REF	9 LAST	63	5525	0 5102 1		TC	DMP1	
0880	REF	3 LAST	66	5526	2 0107 0		INDEX	IND	
0881	REF	2 LAST	66	5527	3 5502 0		XCH	SEQ +2	
0882	REF	5 LAST	65	5530	6 5475 1		AD	K2	
0883	REF	1		5531	5 0105 0		TS	TEM6	
0884	REF	27 LAST	65	5532	5 0102 1		TS	TEM2	
0885	REF	4 LAST	63	5533	0 5466 0		TC	STB	
0886	REF	4 LAST	66	5534	2 0107 0		INDEX	IND	
0887	REF	3 LAST	66	5535	3 5500 1		XCH	SEQ	
0888	REF	2 LAST	65	5536	6 0104 1		AD	BASE	
0889	REF	20 LAST	65	5537	5 0103 0		TS	TEM4	
0890	REF	5 LAST	66	5540	2 0107 0		INDEX	IND	
0891	REF	4 LAST	66	5541	3 5501 0		XCH	SEQ +1	
0892	REF	18 LAST	66	5542	6 0070 0		AD	VACLOC	
0893	REF	10 LAST	66	5543	0 5102 1		TC	DMP1	
0894	REF	2 LAST	66	5544	3 0105 0		XCH	TEM6	
0895	REF	7 LAST	59	5545	0 5020 0		TC	DAD1	
0896	REF	6 LAST	66	5546	1 0107 0		CCS	IND	
0897	REF	1		5547	0 5521 1		TC	LUP	
0898	REF	6 LAST	66	5550	3 5475 1	CREXIT	XCH	K2	
0899	REF	42 LAST	65	5551	5 0062 0		TS	ADDRWD	
0900	REF	2 LAST	59	5552	0 4616 1		TC	VCS1	VXV
0901	REF	6 LAST	63	5553	0 4024 0	LDANZIG	TC	DANZIG	

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 31

R0902 DOUBLE-PRECISION POLYNOMIAL EVALUATION ROUTINE.

R0903 PROGRAM ENTRY

R0904 L TC POLY

R0905

R0906 L+1 OCT -2N

COMPUTES $A_0 + A_1 X + \dots + A_N X^N$, WHERE

R0907

R0908 L+2 D.P. - A

X = C(MPAC).

R0909

0

R0910 - - - - -

R0911 L+2+2N D.P. - A

R0912

N

R0913 L+4+2N NEXT OPERATION

0914	REF	1			5554	3	5610	0	POLY	CAF	BUGBITS2	CONTAINS XCADR VBUF
0915	REF	21	LAST	66	5555	5	0103	0		TS	TEM4	
0916	REF	13	LAST	64	5556	3	5501	0		CAF	ZERO	ZERO INTO BUF, BUF+1 TO START POLYLUP
0917	REF	22	LAST	65	5557	5	0077	1		TS	BUF	
0918	REF	23	LAST	67	5560	5	0100	0		TS	BUF +1	
0919	REF	35	LAST	64	5561	3	0115	1		XCH	MPAC	ARGUMENT X INTO 6T, 7T
0920	REF	16	LAST	65	5562	5	0071	1		TS	VBUF	TEMPORARY STORAGE
0921	REF	36	LAST	67	5563	3	0116	1		XCH	MPAC +1	
0922	REF	17	LAST	67	5564	5	0072	1		TS	VBUF +1	
0923	REF	10	LAST	58	5565	3	4772	1		CAF	DAD2 +4	ADDRESS OF MPAC
0924	REF	28	LAST	66	5566	5	0102	1		TS	TEM2	
0925	REF	39	LAST	65	5567	2	0001	1		INDEX	Q	2N INTO 10T
0926					5570	3	0000	1		CAF	0	
0927	REF	9	LAST	61	5571	5	0107	1		TS	TEM10	
0928	REF	40	LAST	67	5572	6	0001	0		AD	Q	EXIT ADDRESS INTO 11T
0929	REF	2	LAST	44	5573	6	4473	0		AD	THREE	
0930	REF	9	LAST	61	5574	5	0106	0		TS	TEM9	
0931	REF	1			5575	0	5601	0		TC	POLYLUP +3	

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 32

0932	REF	10	LAST	67	5576	5	0107	1	POLYLUP	TS	TEM10	
0933	REF	11	LAST	66	5577	0	5103	0		TC	DMP1 +1	
0934	REF	43	LAST	66	5600	3	0062	0		XCH	ADDRWD	
0935	REF	2	LAST	45	5601	6	4340	1	+3	AD	NEG2	REDUCE COEFFICIENT INDEX BY 1
0936	REF	44	LAST	68	5602	5	0062	0		TS	ADDRWD	COEFFICIENT LOC IN ADDRWD FOR USE BY
0937	REF	3	LAST	58	5603	0	4526	1		TC	TCS1 +2	-BUF,BUF+1 INTO MPAC,MPAC+1
0938	REF	8	LAST	66	5604	0	5021	1		TC	DAD1 +1	- COEFF + (BUF) INTO BUF
0939	REF	11	LAST	68	5605	1	0107	0		CCS	TEM10	
0940	REF	2	LAST	50	5606	6	4335	0		AD	NEG1	THE AD NEG1 ORDER, -0 WILL BE THE END
0941	REF	2	LAST	67	5607	0	5576	0		TC	POLYLUP	
0942	REF	18	LAST	67	5610		50070	0	BUGBITS2	XCADR	VBUF	USED BY POLY
0943	REF	10	LAST	67	5611	0	0106	0		TC	TEM9	RETURN

L 001 FIXED-FIXED INTERPRETER SECTION

USER'S OWN PAGE NO. 33

0944	REF	8	LAST	52	5612	4	0061	1	ITCF	CS	BANKSET	ITC - UNCONDITIONAL TRANSFER PLACE IN QPRET THE POLISH ADDRESS OF THE NEXT EQUATION. ITC MUST BE THE LAST NON-BLANK OPERATOR IN AN EQUATION
0945	REF	15	LAST	52	5613	3	0121	0		XCH	ADRLOC	
0946	REF	3	LAST	50	5614	7	4606	1		MASK	LOW10	
0947	REF	16	LAST	69	5615	6	0121	0		AD	ADRLOC	
0948	REF	11	LAST	60	5616	6	4516	1		AD	ONE	
0949	REF	4	LAST	53	5617	2	0067	1		INDEX	FIXLOC	
0950	REF	1			5620	5	0052	0		TS	QPRET	
0951	REF	45	LAST	68	5621	1	0062	1		CCS	ADDRWD	
0952	REF	2	LAST	50	5622	0	4001	1		TC	INTPRET +1	BANKREG IS ALREADY SET
0953	REF	3	LAST	64	5623	1	0122	1	BOVF	CCS	OVFIND	BRANCH IF OVERFLOW INDICATOR IS ON OVFIND CAN BE EITHER -1, 0, OR +1 IT WAS OFF - DISPATCH NEXT OPERATOR. IT WAS ON - SET TO 0 (OFF) AND DO THE BRANCH
0954					5624	0	5626	0		TC	+2	
0955	REF	7	LAST	66	5625	0	4024	0		TC	DANZIG	
0956	REF	4	LAST	69	5626	5	0122	0		TS	OVFIND	
0957	REF	1			5627	0	4567	1		TC	DOBR	
0958	REF	10	LAST	65	5630	0	4754	0	VSLT1	TC	VECSET	DP VECTOR SHIFT LEFT
0959	REF	18	LAST	58	5631	5	0015	0		TS	BANKREG	
0960	REF	1			5632	0	6477	0		TC	VSLT2	
0961	REF	11	LAST	69	5633	0	4754	0	VSRT1	TC	VECSET	DP VECTOR SHIFT RIGHT SET SHIFTING BIT IN MPAC,MPAC+1 CALL IN BANK ZERO. GET INTEGER ADDRESS
0962	REF	37	LAST	67	5634	5	0116	1		TS	MPAC +1	
0963	REF	19	LAST	69	5635	5	0015	0		TS	BANKREG	
0964	REF	2	LAST	56	5636	0	6042	1		TC	TRUE2	
0965	REF	1			5637	6	5363	1		AD	NEG13	
0966	REF	37	LAST	58	5640	1	0000	0		CCS	A	
0967	REF	1			5641	0	5650	1		TC	VSRT3	
0968					5642	7	7761	1	NEG14	DEC	-14	
0969					5643	0	5644	1		TC	+1	
0970	REF	46	LAST	69	5644	2	0062	1		INDEX	ADDRWD	
0971	REF	4	LAST	50	5645	3	4500	0		CAF	BIT15	
0972	REF	38	LAST	69	5646	5	0115	1		TS	MPAC	
0973	REF	2	LAST	62	5647	0	5371	1		TC	VECCHECK +1	FINISH IN VXSC ROUTINE.
0974	REF	38	LAST	69	5650	2	0000	0	VSRT3	INDEX	A	WHICH PREVIOUSLY CONTAINED A ZERO
0975	REF	1			5651	3	4501	1		CAF	BIT14	
0976	REF	39	LAST	69	5652	3	0116	1		XCH	MPAC +1	
0977	REF	2	LAST	69	5653	0	5646	0		TC	VSRT3 -2	
0979					5777					SETLOC	5777	STANDARD LOCATION FOR EXTENDING BITS
0980					EB	5777	47777	0	OPOVF	XCADR	0	

L 001 BANK 03 INTERPRETER SECTION

USER'S OWN PAGE NO. 1

0001					03,6000	SETLOC 6000					
0002	REF	1			03,6000	0 6021	1	BMN1	TC	BRANCH	BRANCH MINUS
0003	REF	1			03,6001	0 4703	1		TC	RE-ENTER	
0004	REF	2	LAST	70	03,6002	0 4703	1		TC	RE-ENTER	
0005	REF	2	LAST	69	03,6003	0 4567	1		TC	DOBR	
0006	REF	2	LAST	70	03,6004	0 6021	1	BPL1	TC	BRANCH	BRANCH PLUS
0007	REF	3	LAST	70	03,6005	0 4567	1		TC	DOBR	
0008	REF	4	LAST	70	03,6006	0 4567	1		TC	DOBR	
0009	REF	3	LAST	70	03,6007	0 4703	1		TC	RE-ENTER	
0010	REF	3	LAST	70	03,6010	0 6021	1	BZE1	TC	BRANCH	BRANCH ZERO
0011	REF	4	LAST	70	03,6011	0 4703	1		TC	RE-ENTER	
0012	REF	5	LAST	70	03,6012	0 4567	1		TC	DOBR	
0013	REF	5	LAST	70	03,6013	0 4703	1		TC	RE-ENTER	
0014	REF	40	LAST	69	03,6014	1 0115	0	BHIZ1	CCS	MPAC	BRANCH ON HIGH ORDER ZERO
0015	REF	6	LAST	70	03,6015	0 4703	1		TC	RE-ENTER	PNZ
0016	REF	6	LAST	70	03,6016	0 4567	1		TC	DOBR	
0017	REF	7	LAST	70	03,6017	0 4703	1		TC	RE-ENTER	
0018	REF	7	LAST	70	03,6020	0 4567	1		TC	DOBR	
0019	REF	41	LAST	67	03,6021	3 0001	0	BRANCH	XCH	Q	
0020	REF	3	LAST	15	03,6022	5 0111	0		TS	BRANCHQ	
0021	REF	41	LAST	70	03,6023	1 0115	0		CCS	MPAC	
0022	REF	4	LAST	70	03,6024	0 0111	0		TC	BRANCHQ	
0023					03,6025	0 6027	1		TC	+2	
0024	REF	1			03,6026	0 6036	1		TC	MINUS	
0025	REF	42	LAST	70	03,6027	1 0116	0		CCS	MPAC +1	
0026	REF	5	LAST	70	03,6030	0 0111	0		TC	BRANCHQ	
0027					03,6031	0 6033	1		TC	+2	
0028	REF	2	LAST	70	03,6032	0 6036	1		TC	MINUS	
0029	REF	43	LAST	70	03,6033	1 0117	1		CCS	MPAC +2	
0030	REF	6	LAST	70	03,6034	0 0111	0		TC	BRANCHQ	
0031					03,6035	0 6037	0		TC	+2	
0032	REF	12	LAST	69	03,6036	3 4516	1	MINUS	CAF	ONE	
0033	REF	13	LAST	70	03,6037	6 4516	1		AD	ONE	
0034	REF	7	LAST	70	03,6040	6 0111	0		AD	BRANCHQ	
0035					03,6041	0 0000	1		XAQ		

L 001 BANK 03 INTERPRETER SECTION

USER'S OWN PAGE NO. 2

0036	REF	5	LAST	69	03,6042	4	0067	1	TRUE2	CS	FIXLOC	RESTORES INTEGER ADDRESSES
0037	REF	47	LAST	69	03,6043	6	0062	0		AD	ADDRWD	
0038	REF	48	LAST	71	03,6044	5	0062	0		TS	ADDRWD	
0039	REF	39	LAST	69	03,6045	1	0000	0		CCS	A	WE MUST ELIMINATE THE MINUS ZERO CASE
0040	REF	42	LAST	70	03,6046	0	0001	0		TC	Q	OK HERE
0041	REF	1			03,6047	0	3062	0		TC	CCSHOLE	
0042					03,6050	0	6052	0		TC	+2	IF ADDRESS WAS NEGATIVE
0043	REF	8	LAST	69	03,6051	0	4024	0		TC	DANZIG	FAST EXIT FOR ZERO SHIFT COUNTS
0044	REF	15	LAST	62	03,6052	2	0065	0		INDEX	MODE	RIGHT SHIFT INSTEAD OF A LEFT ONE
0045					03,6053	0	6056	1		TC	+3	CCS FOLLOWED BY ADD LEFT THE COUNT POS.
0046	REF	2	LAST	46	03,6054	0	5100	0		TC	SHIFTR1 +3	SO WE NEED ONLY CALL THE APPROPRIATE
0047	REF	3	LAST	71	03,6055	0	5100	0		TC	SHIFTR1 +3	SHIFT RIGHT INSTRUCTION.
0048	REF	49	LAST	71	03,6056	4	0062	1		CS	ADDRWD	PUT POSITIVE COUNT IN ADDRWD.
0049	REF	50	LAST	71	03,6057	5	0062	0		TS	ADDRWD	
0050	REF	3	LAST	68	03,6060	6	4335	0		AD	NEG1	DECREMENT LIKE CCS BEFORE RETURNING.
0051	REF	2	LAST	46	03,6061	0	5637	0		TC	VSRT1 +4	
0052	REF	2	LAST	43	03,6062	0	4722	1	AST	TC	TAG	
0053	REF	21	LAST	50	03,6063	4	0076	1		CS	POLISH	
0054	REF	3	LAST	53	03,6064	2	0075	1	SSTORE	INDEX	TAG1	
0055					03,6065	3	0050	1		XCH	40D	STEP REGISTER
0056	REF	8	LAST	70	03,6066	0	4703	1		TC	RE-ENTER	
0057	REF	3	LAST	71	03,6067	0	4722	1	AXC	TC	TAG	ADDRESS TO INDEX COMPLEMENTED
0058	REF	22	LAST	71	03,6070	3	0076	0		XCH	POLISH	
0059	REF	1			03,6071	0	6074	1		TC	XSTORE	
0060	REF	4	LAST	71	03,6072	0	4722	1	AXT	TC	TAG	
0061	REF	23	LAST	71	03,6073	4	0076	1		CS	POLISH	
0062	REF	4	LAST	71	03,6074	2	0075	1	XSTORE	INDEX	TAG1	
0063					03,6075	3	0046	0		XCH	38D	MAY HAVE OVERFLOWED
0064	REF	9	LAST	71	03,6076	0	4703	1		TC	RE-ENTER	
0065	REF	5	LAST	71	03,6077	0	4722	1	LXA	TC	TAG	
0066	REF	51	LAST	71	03,6100	2	0062	1		INDEX	ADDRWD	MUST BE ERASABLE - NOT NEEDED OTHERWISE
0067					03,6101	4	0000	0		CS	0	
0068	REF	40	LAST	71	03,6102	4	0000	0	+3	CS	A	
0069	REF	2	LAST	71	03,6103	0	6074	1		TC	XSTORE	
0070	REF	6	LAST	71	03,6104	0	4722	1	LXC	TC	TAG	LOAD INDEX FROM ADDRESS COMPLEMENTED
0071	REF	52	LAST	71	03,6105	2	0062	1		INDEX	ADDRWD	
0072					03,6106	4	0000	0		CS	0	
0073	REF	3	LAST	71	03,6107	0	6074	1		TC	XSTORE	
0074	REF	7	LAST	71	03,6110	0	4722	1	SXA	TC	TAG	
0075	REF	5	LAST	71	03,6111	2	0075	1		INDEX	TAG1	
0076					03,6112	4	0046	1		CS	38D	GET INDEX
0077	REF	41	LAST	71	03,6113	4	0000	0		CS	A	
0078	REF	1			03,6114	0	4701	0		TC	STOR1	

L 001 BANK 03 INTERPRETER SECTION

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0079	REF	8	LAST	71	03,6115	0	4722	1	TIX	TC	TAG	
0080	REF	6	LAST	71	03,6116	2	0075	1		INDEX	TAG1	GET APPROPRIATE STEP REGISTER
0081					03,6117	4	0050	0		CS	40D	STEP REGISTER
0082	REF	7	LAST	72	03,6120	2	0075	1		INDEX	TAG1	
0083					03,6121	6	0046	0		AD	38D	
0084	REF	29	LAST	67	03,6122	5	0102	1		TS	TEM2	TO TEMPORARY
0085	REF	42	LAST	71	03,6123	1	0000	0		CCS	A	
0086	REF	30	LAST	72	03,6124	3	0102	1		XCH	TEM2	DECREMENT INDEX AND BRANCH
0087	REF	1			03,6125	0	6130	0		TC	TIXBR	
0088	REF	10	LAST	71	03,6126	0	4703	1		TC	RE-ENTER	INDEX LEFT ALONE AND NO BRANCH
0089	REF	11	LAST	72	03,6127	0	4703	1	LNOBR	TC	RE-ENTER	
0090	REF	8	LAST	72	03,6130	2	0075	1	TIXBR	INDEX	TAG1	
0091					03,6131	5	0046	0		TS	38D	
0092	REF	24	LAST	71	03,6132	4	0076	1		CS	POLISH	
0093	REF	2	LAST	50	03,6133	0	4602	1		TC	DOBR2	
0094	REF	9	LAST	72	03,6134	0	4722	1	INCR	TC	TAG	
0095	REF	25	LAST	72	03,6135	4	0076	1		CS	POLISH	
0096	REF	9	LAST	72	03,6136	2	0075	1		INDEX	TAG1	
0097					03,6137	6	0046	0		AD	38D	
0098	REF	4	LAST	71	03,6140	0	6074	1		TC	XSTORE	
0099	REF	10	LAST	72	03,6141	0	4722	1	XCHX	TC	TAG	
0100	REF	53	LAST	71	03,6142	2	0062	1		INDEX	ADDRWD	
0101					03,6143	3	0000	1		XCH	0	
0102	REF	10	LAST	72	03,6144	2	0075	1		INDEX	TAG1	
0103					03,6145	3	0046	0		XCH	38D	
0104	REF	2	LAST	71	03,6146	0	4701	0		TC	STOR1	
0105	REF	11	LAST	72	03,6147	0	4722	1	XSU	TC	TAG	INDEX REGISTER SUBTRACT FROM ERASABLE
0106	REF	54	LAST	72	03,6150	2	0062	1		INDEX	ADDRWD	
0107					03,6151	4	0000	0		CS	0	
0108	REF	2	LAST	47	03,6152	0	6136	0		TC	INCR +2	
0109	REF	12	LAST	72	03,6153	0	4722	1	XAD	TC	TAG	INDEX REGISTER ADD FROM ERASABLE
0110	REF	55	LAST	72	03,6154	2	0062	1		INDEX	ADDRWD	
0111					03,6155	4	0000	0		CS	0	
0112					03,6156	4	0000	0		COM		
0113	REF	3	LAST	72	03,6157	0	6136	0		TC	INCR +2	

L 001 BANK 03 INTERPRETER SECTION

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0114	REF	14	LAST	67	03,6160	3	5501	0	VDEF	CAF	ZERO	
0115	REF	19	LAST	66	03,6161	6	0070	0		AD	VACLOC	USES MPAC AS V0, PUSHES UP FOR V1, AND
0116	REF	31	LAST	72	03,6162	5	0102	1		TS	TEM2	PUSHES UP AGAIN FOR V2. THE RESULTING
0117	REF	11	LAST	67	03,6163	3	4772	1		CAF	DAD2 +4	VECTOR IS LEFT IN VAC
0118	REF	2	LAST	58	03,6164	0	5041	1		TC	8TO2	
0119	REF	6	LAST	63	03,6165	0	5412	0		TC	INCRT2	
0120	REF	2	LAST	45	03,6166	0	4326	1		TC	PUSHUP1	
0121	REF	3	LAST	73	03,6167	0	5041	1		TC	8TO2	
0122	REF	7	LAST	73	03,6170	0	5412	0		TC	INCRT2	
0123	REF	3	LAST	73	03,6171	0	4326	1		TC	PUSHUP1	
0124	REF	4	LAST	73	03,6172	0	5041	1		TC	8TO2	
0125	REF	1			03,6173	0	5410	1		TC	ZEROEXIT	TO DECLAIN MO45 1S VECTOR
0126	REF	20	LAST	56	03,6174	1	0020	1	ITA1	CCS	CYR	
0127					03,6175	0	6203	0		TC	+6	FOR ITA
0128	REF	2	LAST	71	03,6176	0	3062	0		TC	CCSHOLE	
0129	REF	56	LAST	72	03,6177	2	0062	1		INDEX	ADDRWD	PICK UP ADDRESS
0130					03,6200	4	0000	0		CS	0	
0131					03,6201	4	0000	0		COM		
0132	REF	3	LAST	72	03,6202	0	4602	1		TC	DOBR2	AND DO THE BRANCH
0133	REF	6	LAST	71	03,6203	2	0067	1	+6	INDEX	FIXLOC	
0134	REF	2	LAST	69	03,6204	4	0052	1		CS	QPRET	
0135	REF	2	LAST	47	03,6205	0	6113	1		TC	SXA +3	COMPLEMENT AND DEPOSIT
0136	REF	21	LAST	73	03,6206	1	0020	1	EXIT	CCS	CYR	RETURN TO BASIC
0137	REF	1			03,6207	0	4571	0		TC	EXIT2	EXIT.
0138	REF	3	LAST	73	03,6210	0	3062	0		TC	CCSHOLE	
0139	REF	26	LAST	72	03,6211	4	0076	1		CS	POLISH	HERE TO RETURN TO BASIC AT X
0140	REF	1			03,6212	0	5662	0		TC	SWCALL	
0141	REF	57	LAST	73	03,6213	2	0062	1	SIGN	INDEX	ADDRWD	AFFIX SIGN OF X TO MPAC OR VAC
0142					03,6214	1	0000	0		CCS	0	MUST BE NON-ZERO
0143	REF	9	LAST	71	03,6215	0	4024	0		TC	DANZIG	
0144					03,6216	0	6220	1		TC	+2	EXAMINE MINOR PART
0145	REF	2	LAST	47	03,6217	0	6325	0		TC	COMP	COMPLEMENT VECTOR OR SCALAR.
0146	REF	58	LAST	73	03,6220	2	0062	1		INDEX	ADDRWD	
0147					03,6221	1	0001	1		CCS	1	
0148	REF	10	LAST	73	03,6222	0	4024	0		TC	DANZIG	
0149	REF	11	LAST	73	03,6223	0	4024	0		TC	DANZIG	NO OPERATION IF C(ADDRWD,ADDRWD+1) = 0
0150	REF	3	LAST	73	03,6224	0	6325	0		TC	COMP	
0151	REF	12	LAST	73	03,6225	0	4024	0		TC	DANZIG	

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0152	REF	20	LAST	73	03,6226	4	0070	1	VSQ	CS	VACLOC	TAKE SQUARE OF LENGTH OF VECTOR IN VAC.
0153					03,6227	4	0000	0		COM		
0154	REF	59	LAST	73	03,6230	5	0062	0		TS	ADDRWD	
0155	REF	2	LAST	46	03,6231	0	5235	0		TC	DOT1 +1	FINISH IN DOT PRODUCT ROUTINE.
0156	REF	14	LAST	70	03,6232	6	4516	1		AD	ONE	FROM TRUE2
0157	REF	43	LAST	71	03,6233	3	0001	0	SHIFTR	XCH	Q	
0158	REF	14	LAST	59	03,6234	5	0104	1		TS	TEM5	SHIFT TP MPAC RIGHT ACCORDING TO INTEGER
0159	REF	44	LAST	74	03,6235	1	0001	1		CCS	Q	PICK UP COUNT, SUBTRACTING ONE
0160	REF	2	LAST	69	03,6236	6	5363	1	+3	AD	NEG13	RETURNS HERE FROM SR14
0161	REF	43	LAST	72	03,6237	1	0000	0		CCS	A	
0162	REF	15	LAST	74	03,6240	6	4516	1		AD	ONE	SHIFT COUNT MORE THAN 14 - DECREMENT BY
0163	REF	1			03,6241	0	6251	1		TC	SR14	14 AND EXCHANGE
0164					03,6242	0	6244	0		TC	+2	REMAINING SHIFT COUNT BETWEEN 1 AND 13
0165	REF	2	LAST	74	03,6243	0	6251	1		TC	SR14	MULTIPLES OF 14 END UP HERE
0166					03,6244	4	0000	0		COM		
0167	REF	44	LAST	74	03,6245	2	0000	0		INDEX	A	PICK UP PROPER SHIFTING BIT
0168	REF	1			03,6246	3	4515	1		CAF	BIT2	
0169	REF	1			03,6247	0	5416	1		TC	SHORTMP	DO SHIFT BY MULTIPLICATION
0170	REF	15	LAST	74	03,6250	0	0104	1		TC	TEM5	(TEM5 CONTAINS SQRT RETURN IF SQRT CALL)
0171	REF	44	LAST	70	03,6251	3	0115	1	SR14	XCH	MPAC	SAVE REDUCED COUNT
0172	REF	45	LAST	74	03,6252	3	0116	1		XCH	MPAC +1	
0173	REF	46	LAST	74	03,6253	3	0117	0		XCH	MPAC +2	
0174	REF	15	LAST	73	03,6254	3	5501	0		CAF	ZERO	
0175	REF	47	LAST	74	03,6255	3	0115	1		XCH	MPAC	NOW BRING IT BACK
0176	REF	45	LAST	74	03,6256	1	0000	0		CCS	A	SEE IF REMAINING COUNT IS ZERO
0177	REF	2	LAST	56	03,6257	0	6236	0		TC	SHIFTR +3	NON-ZERO - BACK TO SHIFT LOOP
0178	REF	16	LAST	74	03,6260	0	0104	1		TC	TEM5	FINISHED

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0179	REF	1		03,6261	0 6263 0	ABVAL1	TC	ABVAL	
0180	REF	2 LAST	63	03,6262	0 5237 1		TC	DPEXIT	MODE IS NOW DP
0181	REF	45 LAST	74	03,6263	3 0001 0	ABVAL	XCH	Q	TAKES HALF THE LENGTH OF THE VECTOR IN
0182	REF	12 LAST	68	03,6264	5 0107 1		TS	TEM10	VAC
0183	REF	1		03,6265	0 6275 1		TC	VSR1	SHIFT VECTOR RIGHT ONE
0184	REF	7 LAST	65	03,6266	0 5246 1		TC	DOT2	TAKE THE SQUARE OF ITS LENGTH
0185	REF	4 LAST	62	03,6267	4 5502 1		CS	FOUR	STORE SQUARE OF LENGTH IN REGISTERS 28
0186	REF	21 LAST	74	03,6270	6 0070 0		AD	VACLOC	AND 29 OF VAC AREA.
0187	REF	4 LAST	62	03,6271	0 5347 1		TC	STORDAC	
0188	REF	2 LAST	60	03,6272	0 4740 0		TC	MPACCOM	
0189	REF	1		03,6273	0 7322 0		TC	SQRT3	TAKE A TRIPLE-PRECISION SQRT (DP ANSWER)
0190	REF	13 LAST	75	03,6274	0 0107 1		TC	TEM10	AND EXIT
0191	REF	46 LAST	75	03,6275	3 0001 0	VSR1	XCH	Q	SUBROUTINE WHICH SHIFTS VECTOR IN VAC
0192	REF	11 LAST	68	03,6276	5 0106 0		TS	TEM9	RIGHT ONE PLACE. USED BY ABVAL AND UNIT
0193	REF	5 LAST	75	03,6277	3 5502 0		CAF	FOUR	
0194	REF	22 LAST	75	03,6300	6 0070 0		AD	VACLOC	USED BY ABVAL AND UNIT
0195	REF	1		03,6301	0 7301 1		TC	SR1	VECTOR IS SHIFTED RIGHT SO DOT PRODUCT
0196	REF	8 LAST	61	03,6302	3 0064 0		XCH	TEM11	WONT OVERFLOW.
0197	REF	3 LAST	48	03,6303	6 4340 1		AD	MINUS2	
0198	REF	2 LAST	75	03,6304	0 7301 1		TC	SR1	
0199	REF	9 LAST	75	03,6305	3 0064 0		XCH	TEM11	
0200	REF	4 LAST	75	03,6306	6 4340 1		AD	MINUS2	
0201	REF	60 LAST	74	03,6307	5 0062 0		TS	ADDRWD	FOR THE DOT ROUTINE.
0202	REF	3 LAST	75	03,6310	0 7301 1		TC	SR1	VECTOR IS NOW SHIFTED RIGHT
0203	REF	12 LAST	75	03,6311	0 0106 0		TC	TEM9	
0204	REF	4 LAST	70	03,6312	0 6021 1	SSM	TC	BRANCH	SET SIGN OF MPAC,MPAC+1 MINUS. USED BY
0205	REF	3 LAST	75	03,6313	0 4740 0		TC	MPACCOM	SIGN INSTRUCTION
0206	REF	13 LAST	73	03,6314	0 4024 0		TC	DANZIG	
0207	REF	14 LAST	75	03,6315	0 4024 0		TC	DANZIG	
0208	REF	5 LAST	75	03,6316	0 6021 1	SSP	TC	BRANCH	
0209	REF	15 LAST	75	03,6317	0 4024 0		TC	DANZIG	
0210	REF	16 LAST	75	03,6320	0 4024 0		TC	DANZIG	
0211	REF	4 LAST	75	03,6321	0 4740 0		TC	MPACCOM	
0212	REF	17 LAST	75	03,6322	0 4024 0		TC	DANZIG	

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0213	REF	2	LAST	62	03,6323	3 4231 0	SQUARE	CAF	BUGMPAC	SQUARE MPAC AND LEAVE RESULT IN MPAC, +2
0214	REF	1			03,6324	0 5064 0		TC	DSQ2	CONTINUE AS IN DMP.
0215	REF	16	LAST	71	03,6325	4 0065 0	COMP	CS	MODE	
0216					03,6326	6 0000 1		DOUBLE		
0217	REF	46	LAST	74	03,6327	2 0000 0		INDEX	A	
0218					03,6330	0 6331 0		TC	+1	
0219	REF	2	LAST	59	03,6331	0 5202 1		TC	VACCOM	
0220	REF	18	LAST	75	03,6332	0 4024 0		TC	DANZIG	
0221	REF	5	LAST	75	03,6333	0 4740 0		TC	MPACCOM	FOR TP
0222	REF	19	LAST	76	03,6334	0 4024 0		TC	DANZIG	
0223					03,6335	0 6333 1		TC	-2	
0224	REF	16	LAST	74	03,6336	3 5501 0	SMOVE	CAF	ZERO	
0225	REF	48	LAST	74	03,6337	5 0116 1		TS	MPAC +1	
0226	REF	20	LAST	76	03,6340	0 4024 0		TC	DANZIG	
0227	REF	22	LAST	73	03,6341	1 0020 1	NEXT	CCS	CYR	NEXT AND ITCQ OPERATORS
0228	REF	17	LAST	69	03,6342	1 0121 1		CCS	ADRLOC	NEXT - KNOCK DOWN ADRLOC BY ONE
0229					03,6343	0 6347 1		TC	+4	AND BEGIN NEXT EQUN IMMEDIATELY
0230	REF	7	LAST	73	03,6344	2 0067 1		INDEX	FIXLOC	ITCQ - PICK UP QPRET AND BRANCH
0231	REF	3	LAST	73	03,6345	3 0052 0		XCH	QPRET	
0232	REF	4	LAST	73	03,6346	0 4602 1		TC	DOBR2	
0233	REF	18	LAST	76	03,6347	5 0121 0	+4	TS	ADRLOC	
0234	REF	16	LAST	74	03,6350	3 4516 1		CAF	ONE	TURN ON LOAD INDICATOR
0235	REF	1			03,6351	0 6362 0		TC	SWLODIND	
0236	REF	19	LAST	76	03,6352	1 0121 1	NOLOAD	CCS	ADRLOC	NOLOD AND ROUND OPERATORS. DECREMENT
0237	REF	20	LAST	76	03,6353	5 0121 0		TS	ADRLOC	ADRLOC SINCE WE SHOULDNT HAVE TAKEN AN
0238	REF	23	LAST	76	03,6354	1 0020 1		CCS	CYR	ADDRESS. SEE IF NOLOD OR ROUND
0239	REF	17	LAST	76	03,6355	3 5501 0		CAF	ZERO	NOLOD - SET NEWEQIND TO ZERO
0240					03,6356	0 6362 0		TC	+4	
0241	REF	17	LAST	76	03,6357	4 4516 0		CS	ONE	MODE IS NOW DP
0242	REF	17	LAST	76	03,6360	5 0065 1		TS	MODE	
0243	REF	1			03,6361	0 5072 1		TC	MPACRND	GO ROUND MPAC AND RETURN TO DANZIG
0244	REF	11	LAST	62	03,6362	5 0066 1	SWLODIND	TS	NEWEQIND	
0245	REF	21	LAST	76	03,6363	0 4024 0		TC	DANZIG	

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0246	REF	49	LAST	76	03,6364	3 0117 0	SL1	XCH	MPAC +2	ROUTINE WHICH SHIFTS TRIPLE ACCUMULATOR LEFT ONE PLACE. IT IS USED BY TSLT AND TSLC	
0247					03,6365	6 0000 1		DOUBLE			
0248	REF	50	LAST	77	03,6366	5 0117 0		TS	MPAC +2		
0249	REF	18	LAST	76	03,6367	3 5501 0		CAF	ZERO		
0250	REF	51	LAST	77	03,6370	6 0116 1		AD	MPAC +1		
0251	REF	52	LAST	77	03,6371	6 0116 1		AD	MPAC +1		
0252	REF	53	LAST	77	03,6372	5 0116 1		TS	MPAC +1		
0253	REF	19	LAST	77	03,6373	3 5501 0		CAF	ZERO		
0254	REF	54	LAST	77	03,6374	6 0115 1		AD	MPAC		
0255	REF	55	LAST	77	03,6375	6 0115 1		AD	MPAC		
0256	REF	56	LAST	77	03,6376	5 0115 1		TS	MPAC		
0257	REF	47	LAST	75	03,6377	0 0001 0		TC	0	SET OVFINO IF ENTIRE WORD OVERFLOWS	
0258	REF	5	LAST	69	03,6400	5 0122 0		TS	OVFINO		
0259	REF	48	LAST	77	03,6401	0 0001 0		TC	0		
0260	REF	3	LAST	69	03,6402	0 6042 1	SHIFTL	TC	TRUE2	TP LEFT SHIFT - GET INTEGER ADDRESS	
0261					03,6403	0 6406 0		TC	+3		
0262	REF	61	LAST	75	03,6404	5 0062 0	LEFTLOOP	TS	ADDRWD		
0263	REF	1			03,6405	0 6364 0		TC	SL1		
0264	REF	62	LAST	77	03,6406	1 0062 1	+3	CCS	ADDRWD		
0265	REF	1			03,6407	0 6404 1		TC	LEFTLOOP		
0266	REF	22	LAST	76	03,6410	0 4024 0		TC	DANZIG		
0267	REF	20	LAST	77	03,6411	3 5501 0	TSLC	CAF	ZERO	NORMALIZATION - START BY SETTING COUNT TO ZERO	
0268	REF	32	LAST	73	03,6412	5 0102 1		TS	TEM2		
0269	REF	6	LAST	75	03,6413	0 6021 1		TC	BRANCH		
0270					03,6414	0 6416 1		TC	+2		
0271	REF	1			03,6415	0 6430 0		TC	SLCANS		
0272	REF	57	LAST	77	03,6416	4 0115 0	RETRN	CS	MPAC	HERE FOR NON-ZERO	
0273					03,6417	6 0000 1		DOUBLE		SKIP ON OVERFLOW NO OVERFLOW - SHIFT AGAIN DONE - WE OVERFLOWED	
0274					03,6420	5 0000 1		OVSK			
0275					03,6421	0 6423 1		TC	+2		
0276	REF	2	LAST	77	03,6422	0 6430 0		TC	SLCANS	DO THE SHIFT AND LOOP	
0277	REF	33	LAST	77	03,6423	3 0102 1		XCH	TEM2		
0278	REF	18	LAST	76	03,6424	6 4516 1		AD	ONE		
0279	REF	34	LAST	77	03,6425	5 0102 1		TS	TEM2		
0280	REF	2	LAST	77	03,6426	0 6364 0		TC	SL1		
0281	REF	1			03,6427	0 6416 1		TC	RETRN		
0282	REF	35	LAST	77	03,6430	4 0102 0	SLCANS	CS	TEM2		STORE COMPLEMENT OF COUNT
0283	REF	63	LAST	77	03,6431	2 0062 1		INDEX	ADDRWD		
0284					03,6432	5 0000 1		TS	0		
0285	REF	23	LAST	77	03,6433	0 4024 0		TC	DANZIG		

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0286	REF	27	LAST	73	03,6434	4	0076	1	SWITCHEM	CS	POLISH	SWITCH AND TEST INSTRUCTIONS.
0287	REF	64	LAST	77	03,6435	5	0062	0		TS	ADDRWD	DECOMPOSE ADDRESS INTO SWITCH WORD AND
0288	REF	1			03,6436	7	7210	1		MASK	SBITMASK	BIT. MULTIPLES OF 16 ARE EXCLUDED.
0289	REF	65	LAST	78	03,6437	3	0062	0		XCH	ADDRWD	
0290					03,6440	2	5777	1		EXTEND		
0291	REF	3	LAST	48	03,6441	4	4504	0		MP	BIT11	
0292	REF	12	LAST	64	03,6442	5	0105	0		TS	TEM8	0, 1, OR 2.
0293	REF	66	LAST	78	03,6443	2	0062	1		INDEX	ADDRWD	PICK UP A 1 IN SPECIFIED SWITCH POS.
0294	REF	5	LAST	69	03,6444	3	4477	1		CAF	BIT15 -1	SWITCHES ARE NUMBERED 1 - 15 D.
0295	REF	22	LAST	67	03,6445	5	0103	0		TS	TEM4	
0296					03,6446	2	0017	0		INHINT		
0297	REF	13	LAST	78	03,6447	2	0105	1		INDEX	TEM8	
0298	REF	6	LAST	18	03,6450	7	0645	1		MASK	STATE	GET BS WHERE B IS BIT AND S IS *STATE*
0299	REF	17	LAST	74	03,6451	5	0104	1		TS	TEM5	- THE WORD CONTAINING THE 15 SWITCHES
0300	REF	24	LAST	76	03,6452	1	0020	1		CCS	CYR	DECIDE WHETHER INST. IS *SWITCH* OR TEST
0301	REF	4	LAST	45	03,6453	0	4364	1		TC	INCADR	TO PICK UP NEXT ADDRESS
0302					03,6454	0	6457	1		TC	+3	
0303	REF	23	LAST	78	03,6455	4	0103	1		CS	TEM4	
0304	REF	1			03,6456	0	6464	1		TC	SWITCHIT	SWITCH BIT.
0305					03,6457	2	0016	1		RELINT		
0306	REF	18	LAST	78	03,6460	1	0104	0		CCS	TEM5	TEST SWITCH
0307	REF	12	LAST	72	03,6461	0	4703	1		TC	RE-ENTER	IT WAS ON - DONT BRANCH
0308	REF	1			03,6462	0	4574	0		TC	SWF/F	OFF - GO TO FIXED-FIXED TO PICK UP ADR.
0309	REF	13	LAST	78	03,6463	0	4703	1		TC	RE-ENTER	COMES HERE IF BIT 15 WAS ON
0310	REF	14	LAST	78	03,6464	2	0105	1	SWITCHIT	INDEX	TEM8	WE DESIRE THE LOGICAL EXCLUSIVE OR OF B
0311	REF	7	LAST	78	03,6465	7	0645	1		MASK	STATE	
0312	REF	49	LAST	77	03,6466	5	0001	0		TS	Q	SET THIS BIT TO 050 AD IS OR.
0313	REF	15	LAST	78	03,6467	2	0105	1		INDEX	TEM8	
0314	REF	8	LAST	78	03,6470	4	0645	1		CS	STATE	
0315	REF	24	LAST	78	03,6471	7	0103	1		MASK	TEM4	COMPLEMENT OF SWITCH BIT.
0316	REF	50	LAST	78	03,6472	6	0001	0		AD	Q	OR
0317	REF	16	LAST	78	03,6473	2	0105	1		INDEX	TEM8	
0318	REF	9	LAST	78	03,6474	5	0645	0		TS	STATE	
0319					03,6475	2	0016	1		RELINT		
0320	REF	14	LAST	78	03,6476	0	4703	1		TC	RE-ENTER	DONT PUSH-DOWN IF AT END.

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0321	REF	58	LAST	77	03,6477	5	0116	1	VSLT2	TS	MPAC +1	SET TO ZERO IN CASE OF RIGHT SHIFT. RETURNS TO CALLER IF COUNT PNZ.
0322	REF	4	LAST	77	03,6500	0	6042	1		TC	TRUE2	
0323	REF	1			03,6501	0	6513	0		TC	VSLTEST	
0324	REF	67	LAST	78	03,6502	5	0062	0	VSLTLOOP	TS	ADDRWD	
0325	REF	21	LAST	77	03,6503	3	5501	0		CAF	ZERO	
0326	REF	23	LAST	75	03,6504	6	0070	0		AD	VACLOC	
0327	REF	36	LAST	77	03,6505	5	0102	1		TS	TEM2	
0328	REF	1			03,6506	0	6516	0		TC	VSL1	
0329	REF	8	LAST	73	03,6507	0	5412	0		TC	INCRT2	
0330	REF	2	LAST	79	03,6510	0	6516	0		TC	VSL1	
0331	REF	9	LAST	79	03,6511	0	5412	0		TC	INCRT2	
0332	REF	3	LAST	79	03,6512	0	6516	0		TC	VSL1	
0333	REF	68	LAST	79	03,6513	1	0062	1	VSLTEST	CCS	ADDRWD	
0334	REF	1			03,6514	0	6502	0		TC	VSLTLOOP	
0335	REF	24	LAST	77	03,6515	0	4024	0		TC	DANZIG	
0336	REF	37	LAST	79	03,6516	2	0102	0	VSL1	INDEX	TEM2	
0337					03,6517	3	0001	0		XCH	1	
0338					03,6520	6	0000	1		DOUBLE		
0339	REF	38	LAST	79	03,6521	2	0102	0		INDEX	TEM2	
0340					03,6522	5	0001	0		TS	1	
0341	REF	22	LAST	79	03,6523	3	5501	0		CAF	ZERO	
0342	REF	39	LAST	79	03,6524	2	0102	0		INDEX	TEM2	
0343					03,6525	6	0000	1		AD	0	
0344	REF	40	LAST	79	03,6526	2	0102	0		INDEX	TEM2	
0345					03,6527	6	0000	1		AD	0	
0346	REF	41	LAST	79	03,6530	2	0102	0		INDEX	TEM2	
0347					03,6531	5	0000	1		TS	0	
0348	REF	51	LAST	78	03,6532	0	0001	0		TC	Q	
0349	REF	6	LAST	77	03,6533	5	0122	0		TS	OVFIND	
0350	REF	52	LAST	79	03,6534	0	0001	0		TC	Q	

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R0351 DOUBLE-PRECISION SINE-COSINE ROUTINES.

R0352 THESE PROGRAMS ARE ENTERED AND EXIT IN THE INTERPRETIVE MODE, WITH
 R0353 THE ARGUMENT IN MPAC AT ENTRY AND THE ANSWER IN MPAC AT EXIT. THEY
 R0354 COMPUTE, RESPECTIVELY, (1/2) COS (PI X) AND (1/2) SIN (PI X) WHERE
 R0355 X = C(MPAC) RANGES OVER THE INTERVAL (-1, +1).

R0356 PROGRAM USES THE SERIES

R0357 $(1/2) \sin(\pi X) = C X + 4C X^3 + 16C X^5 + 64C X^7 + 256C X^9$
 R0358

R0359 WHERE THE C COEFFICIENTS ARE FROM HASTINGS SERIES
 R0360

R0361 $\sin(\pi X/2) = C X + C X^3 + C X^5 + C X^7 + C X^9$
 R0362
 R0363

0364	REF	53	LAST	79	03,6535	3 0001 0	COSINE	XCH	Q	CLOSED COSINE ROUTINE
0365	REF	17	LAST	78	03,6536	5 0105 0		TS	TEM8	
0366	REF	1			03,6537	0 7143 0		TC	TSGNABS	FORM 1/2 - (ABS(X)) AND COMPUTE SINE
0367	REF	1			03,6540	0 6761 1		TC	DACCOM+	
0368	REF	1			03,6541	0 6544 1		TC	SINE +2	
0369	REF	54	LAST	80	03,6542	3 0001 0	SINE	XCH	Q	CLOSED SINE ROUTINE
0370	REF	18	LAST	80	03,6543	5 0105 0		TS	TEM8	
0371	REF	1			03,6544	0 6731 1		TC	PARTSL1	DOUBLE ARGUMENT
0372	REF	59	LAST	79	03,6545	5 0115 1		TS	MPAC	
0373					03,6546	0 6550 1		TC	+2	IF DIDNT SKIP
0374	REF	3	LAST	65	03,6547	0 4742 1		TC	DACCOM	IF SO, WE WANT -SIN(X) = SIN(-X)
0375	REF	60	LAST	80	03,6550	4 0115 0		CS	MPAC	
0376	REF	19	LAST	68	03,6551	5 0073 0		TS	VBUF +2	SAVE NEGATIVE OF ARGUMENT
0377	REF	42	LAST	79	03,6552	5 0102 1		TS	TEM2	
0378					03,6553	6 0000 1		DOUBLE		
0379	REF	55	LAST	80	03,6554	5 0001 0		TS	Q	
0380	REF	1			03,6555	0 6570 0		TC	SN1	IF ABS(X) LESS THAN 1/2
0381	REF	47	LAST	76	03,6556	2 0000 0		INDEX	A	CONTAINS +-1
0382	REF	1			03,6557	4 4521 1		CS	NEG1/2 +1	
0383	REF	43	LAST	80	03,6560	3 0102 1		XCH	TEM2	
0384	REF	44	LAST	80	03,6561	6 0102 1		AD	TEM2	
0385	REF	45	LAST	80	03,6562	6 0102 1		AD	TEM2	(ADD +-1/2 TWICE TO MAKE +-1.0)
0386	REF	61	LAST	80	03,6563	5 0115 1		TS	MPAC	
0387	REF	62	LAST	80	03,6564	4 0116 0		CS	MPAC +1	
0388	REF	63	LAST	80	03,6565	5 0116 1		TS	MPAC +1	
0389	REF	64	LAST	80	03,6566	4 0115 0		CS	MPAC	
0390	REF	20	LAST	80	03,6567	5 0073 0		TS	VBUF +2	

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0391	REF	65	LAST	80	03,6570	4 0116 0	SN1	CS	MPAC +1	SAVE REST OF ARGUMENT
0392	REF	21	LAST	80	03,6571	5 0074 1		TS	VBUF +3	
0393	REF	3	LAST	76	03,6572	3 4231 0		CAF	BUGMPAC	ADDRESS OF MPAC WITH MP BITS
0394	REF	25	LAST	78	03,6573	5 0103 0		TS	TEM4	
0395	REF	12	LAST	73	03,6574	3 4772 1		CAF	DAD2 +4	SQUARE MPAC
0396	REF	12	LAST	68	03,6575	0 5102 1		TC	DMP1	
0397	REF	4	LAST	68	03,6576	0 4526 1		TC	TCS1 +2	
0398	REF	1			03,6577	0 5554 0		TC	POLY	
0399					03,6600	00010 0		DEC	8	
0400					03,6601	63336 1		2DEC	-0.3926990796	(C /4)
A0401					03,6602	40452 0				1
0402					03,6603	24527 1		2DEC	+0.6459637111	(4C /4)
A0403					03,6604	17013 0				3
0404					03,6605	65631 0		2DEC	-0.318758717	(16C /4)
A0405					03,6606	56501 0				5
0406					03,6607	02311 0		2DEC	+0.074780249	(64C /4)
A0407					03,6610	06306 1				7
0408					03,6611	77541 1		2DEC	-0.009694988	(256C /4)
A0409					03,6612	45020 1				9
0410	REF	1			03,6613	0 5157 1		TC	DMP	DMP BY X
0411	REF	22	LAST	81	03,6614	50072 1		XCADR	VBUF +2	
0412	REF	3	LAST	77	03,6615	0 6364 0		TC	SL1	AND SHIFT LEFT 2
0413	REF	4	LAST	81	03,6616	0 6364 0		TC	SL1	
0414	REF	19	LAST	80	03,6617	0 0105 0		TC	TEM8	DONE
0415	REF	2	LAST	80	03,6620	0 6542 1	SIN1	TC	SINE	INTERPRETER LINKAGE
0416	REF	25	LAST	79	03,6621	0 4024 0		TC	DANZIG	
0417	REF	1			03,6622	0 6535 1	COS1	TC	COSINE	
0418	REF	26	LAST	81	03,6623	0 4024 0		TC	DANZIG	

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0419	REF	1		03,6624	3 6753 0	ARCSIN	CAF	TCTAG+1	PICK UP ARCSIN BRANCH
0420	REF	2 LAST	48	03,6625	6 4476 0		AD	POSMAX	TO FORCE OVERFLOW
0421				03,6626	5 0000 1		DVSK		SKIP AND RESTORE NON-OVERFLOW
0422	REF	1		03,6627	3 6753 0	ARCCOS	CAF	TCEX	SET ARCCOS SWITCH
0423	REF	2 LAST	15	03,6630	3 0114 0		XCH	ESCAPE	NO SKIP, PLEASE
0424	REF	56 LAST	80	03,6631	3 0001 0		XCH	Q	ONLY HAVE TO SAVE Q IN ONE PLACE
0425	REF	4 LAST	15	03,6632	5 0113 1		TS	ARETURN	
0426	REF	1		03,6633	0 7154 0		TC	TPAGREE	FORCE SIGN AGREEMENT SO WE CAN CHECK
0427	REF	48 LAST	80	03,6634	1 0000 0		CCS	A	SIZE OF ARGUMENT (SIGNUM RETURNS IN A).
0428	REF	1		03,6635	0 6643 0		TC	ACOSST	POSITIVE
0429				03,6636	0 6640 0		TC	+2	ARCCOS = PI/2
0430	REF	1		03,6637	0 6740 1		TC	NEGARGU	
0431	REF	1		03,6640	3 4502 1		CAF	QUARTER	ARCCOS(0) = .25(2PI).
0432	REF	66 LAST	81	03,6641	5 0115 1		TS	MPAC	(MPAC +1 IS ALREADY ZERO).
0433	REF	3 LAST	82	03,6642	0 0114 0		TC	ESCAPE	
0434	REF	2 LAST	80	03,6643	0 6731 1	ACOSST	TC	PARTSL1	DOUBLE ARGUMENT
0435	REF	67 LAST	82	03,6644	3 0115 1		XCH	MPAC	NO SKIP, BUT EXAMINE ORIGINAL MPAC
0436	REF	2 LAST	80	03,6645	6 4520 1		AD	NEG1/2	MUST BE LESS THAN OR EQUAL TO 1/2
0437	REF	49 LAST	82	03,6646	1 0000 0		CCS	A	
0438	REF	1		03,6647	0 3044 1		TC	ABORT	MAJOR PART GREATER THAN 1/2. NOTE THAT
0439				03,6650	01301 1		OCT	01301	MPAC+1 IS NOT CHECKED SO A MARGIN EXISTS
0440				03,6651	0 6655 1		TC	+4	NORMAL CASE
0441	REF	68 LAST	82	03,6652	5 0115 1		TS	MPAC	ARGUMENT WAS 1 (SCALED). LEAVE ZERO
0442	REF	69 LAST	82	03,6653	5 0116 1		TS	MPAC +1	AS RESULT AND EXIT
0443	REF	4 LAST	82	03,6654	0 0114 0		TC	ESCAPE	

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0444	REF	70	LAST	82	03,6655	4	0116	0	+4	CS	MPAC +1	
0445	REF	71	LAST	83	03,6656	5	0116	1		TS	MPAC +1	
0446	REF	1			03,6657	5	0074	1		TS	B +1	
0447	REF	72	LAST	83	03,6660	4	0115	0		CS	MPAC	
0448	REF	2	LAST	83	03,6661	5	0073	0		TS	B	
0449	REF	1			03,6662	6	4522	0		AD	HALF	
0450	REF	2	LAST	83	03,6663	6	4522	0		AD	HALF	
0451	REF	73	LAST	83	03,6664	5	0115	1		TS	MPAC	SQRT ARGUMENT IS NOW READY
0452					03,6665	0	6673	0		TC	+6	NORMAL PATH.
0453	REF	3	LAST	82	03,6666	3	4476	0		CAF	POSMAX	WE HAVE FALSE OVERFLOW PRESENT AND IT MUST BE CORRECTED. MAJOR PART WAS ZERO AND MINOR PART PNZ, SO FORM 1.0 - MPAC PROPERLY FOR THIS CASE. GUARANTEED NO OVERFLOW.
0454	REF	74	LAST	83	03,6667	5	0115	1		TS	MPAC	
0455	REF	75	LAST	83	03,6670	6	0116	1		AD	MPAC +1	
0456	REF	19	LAST	77	03,6671	6	4516	1		AD	ONE	
0457	REF	76	LAST	83	03,6672	5	0116	1		TS	MPAC +1	
0458	REF	1			03,6673	0	7320	1	+6	TC	SQRT2	GO TAKE THE SQUARE ROOT.
0459	REF	3	LAST	83	03,6674	4	0074	0		CS	B +1	
0460	REF	77	LAST	83	03,6675	3	0116	1		XCH	MPAC +1	
0461	REF	4	LAST	83	03,6676	5	0074	1		TS	B +1	
0462	REF	5	LAST	83	03,6677	4	0073	1		CS	B	
0463	REF	78	LAST	83	03,6700	3	0115	1		XCH	MPAC	
0464	REF	6	LAST	83	03,6701	5	0073	0		TS	B	

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0465	REF	2	LAST	81	03,6702	0 5554 0	TC	POLY	EVALUATE HASTINGS POLYNOMIAL/2PI
0466					03,6703	00016 0	DEC	14	
0467					03,6704	07777 1	2DEC*	.49999 99920	B-1* HASTINGS COEFFICIENTS/2PI
C0467					03,6705	37777 1			
0468					03,6706	76720 0	2DEC*	-.06830 89201	B-1*
C0468					03,6707	55163 0			
0469					03,6710	00350 1	2DEC*	.02832 28913	B-1*
C0469					03,6711	00532 0			
0470					03,6712	77575 0	2DEC*	-.01597 09772	B-1*
C0470					03,6713	45233 1			
0471					03,6714	00120 1	2DEC*	.00983 31911	B-1*
C0471					03,6715	21555 1			
0472					03,6716	77723 1	2DEC*	-.00543 93193	B-1*
C0472					03,6717	56072 1			
0473					03,6720	00021 1	2DEC*	.00212 31556	B-1*
C0473					03,6721	14445 1			
0474					03,6722	77774 0	2DEC*	-.00040 18634	B-1*
C0474					03,6723	66516 0			
0475	REF	2	LAST	81	03,6724	0 5157 1	TC	DMP	INTERPRETER SUBROUTINE ONLY
0476	REF	7	LAST	83	03,6725	50072 1	XCADR	B	
0477	REF	5	LAST	82	03,6726	0 0114 0	TC	ESCAPE	GO TO ARCSIN/ARCCOS SWITCH (OR NEGARGU)
0478	REF	2	LAST	80	03,6727	0 6761 1	TC	DACCOM+	
0479	REF	5	LAST	82	03,6730	0 0113 1	TC	ARETURN	
0480	REF	79	LAST	83	03,6731	3 0116 1	XCH	MPAC +1	DOES A DOUBLE SHIFT LEFT EXCEPT FOR THE
0481					03,6732	6 0000 1	DOUBLE		FINAL TS. USED BY SIN, COS, ASIN, AND
0482	REF	80	LAST	84	03,6733	5 0116 1	TS	MPAC +1	ACOS.
0483	REF	23	LAST	79	03,6734	3 5501 0	CAF	ZERO	
0484	REF	81	LAST	84	03,6735	6 0115 1	AD	MPAC	
0485	REF	82	LAST	84	03,6736	6 0115 1	AD	MPAC	
0486	REF	57	LAST	82	03,6737	0 0001 0	TC	Q	POSSIBLY WITH OVERFLOW PRESENT
0487	REF	4	LAST	80	03,6740	0 4742 1	TC	DACCOM	ARCCOS(-X)=PI-ARCCOS(X)
0488	REF	1			03,6741	3 6754 1	CAF	TCSUBTR	SET SWITCH TO PERFORM ABOVE
0489	REF	6	LAST	84	03,6742	3 0114 0	XCH	ESCAPE	
0490	REF	1			03,6743	5 0075 0	TS	ESCAPE2	ADDITIONAL SWITCH HERE.
0491	REF	2	LAST	82	03,6744	0 6643 0	TC	ACOSST	

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0492	REF	83	LAST	84	03,6745	4 0115 0	SUBTR	CS	MPAC
0493	REF	3	LAST	83	03,6746	6 4522 0		AD	HALF
0494	REF	84	LAST	85	03,6747	5 0115 1		TS	MPAC
0495	REF	85	LAST	85	03,6750	4 0116 0		CS	MPAC +1
0496	REF	86	LAST	85	03,6751	5 0116 1		TS	MPAC +1
0497	REF	2	LAST	84	03,6752	0 0075 0		TC	ESCAPE2

THIS IS NOW THE ARCSIN/ARCCOS SWITCH

0498	REF	1			03,6753	0 6730 0	TCTAG+1	TC	TAGIT +1
0499	REF	2	LAST	82		03,6753	TCEX	EQUALS	TCTAG+1
0500	REF	1			03,6754	0 6745 1	TCSUBTR	TC	SUBTR

0501	REF	1			03,6755	0 6624 1	ARCSIN1	TC	ARCSIN
0502	REF	27	LAST	81	03,6756	0 4024 0		TC	DANZIG

0503	REF	1			03,6757	0 6627 1	ARCCOS1	TC	ARCCOS
0504	REF	28	LAST	85	03,6760	0 4024 0		TC	DANZIG

0505	REF	87	LAST	85	03,6761	4 0116 0	DACCOM+	CS	MPAC +1
0506	REF	88	LAST	85	03,6762	5 0116 1		TS	MPAC +1
0507	REF	89	LAST	85	03,6763	4 0115 0		CS	MPAC
0508	REF	2	LAST	82	03,6764	6 4502 1		AD	QUARTER
0509	REF	90	LAST	85	03,6765	5 0115 1		TS	MPAC
0510	REF	58	LAST	84	03,6766	0 0001 0		TC	Q

USED BY SIN-COS AND ARCSIN-ARCCOS

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0511	REF	24	LAST	67	03,6767	3	0077	1	MBXCH	XCH	BUF	TO EXCHANGE MPAC AND BUF
0512	REF	91	LAST	85	03,6770	3	0115	1		XCH	MPAC	
0513	REF	25	LAST	86	03,6771	5	0077	1		TS	BUF	
0514	REF	26	LAST	86	03,6772	3	0100	0		XCH	BUF +1	
0515	REF	92	LAST	86	03,6773	3	0116	1		XCH	MPAC +1	
0516	REF	27	LAST	86	03,6774	5	0100	0		TS	BUF +1	
0517	REF	59	LAST	85	03,6775	0	0001	0		TC	Q	
0518	REF	93	LAST	86	03,6776	5	0117	0	DDVO	TS	MPAC +2	SET MPAC+2 TO ZERO TO RESUME DDV
0519	REF	2	LAST	80	03,6777	0	7143	0		TC	TSGNABS	SIGN AGGREGMENT ETC
0520	REF	46	LAST	80	03,7000	5	0102	1		TS	TEM2	SAVE SGN
0521	REF	1			03,7001	0	6767	1		TC	MBXCH	SWITCH CONTENTS
0522	REF	3	LAST	86	03,7002	0	7143	0		TC	TSGNABS	SAME FOR ARGUMENT
0523	REF	47	LAST	86	03,7003	6	0102	1		AD	TEM2	
0524	REF	50	LAST	82	03,7004	1	0000	0		CCS	A	TO GET SIGN OF RESULT
0525					03,7005	0	7010	1		TC	+3	
0526	REF	1			03,7006	0	7133	1		TC	DPDOFLO +1	HERE FOR 0/0 CASE
0527					03,7007	0	7010	1		TC	+1	
0528	REF	48	LAST	86	03,7010	5	0102	1		TS	TEM2	
0529	REF	6	LAST	58	03,7011	1	0110	0		CCS	DVSW	
0530	REF	2	LAST	86	03,7012	0	6767	1		TC	MBXCH	INTERCHANGE OLD DIVISOR AND DIVIDEND
0531	REF	28	LAST	86	03,7013	4	0077	0		CS	BUF	CHECK TO SEE IF C(BUF,BUF+1) LESS
0532	REF	94	LAST	86	03,7014	6	0115	1		AD	MPAC	THAN C(MPAC,MPAC+1). OVERFLOW CONDITION
0533	REF	51	LAST	86	03,7015	1	0000	0		CCS	A	IF NOT
0534	REF	1			03,7016	0	7030	0		TC	DDVOK	SCALING OK
0535	REF	4	LAST	73	03,7017	0	3062	0		TC	CCSHOLE	
0536	REF	2	LAST	86	03,7020	0	7132	0		TC	DPDOFLO	TROUBLE HERE
0537	REF	29	LAST	86	03,7021	4	0100	1		CS	BUF +1	CHECK MINOR PARTS IF MAJORS EQUAL
0538	REF	95	LAST	86	03,7022	6	0116	1		AD	MPAC +1	
0539	REF	52	LAST	86	03,7023	1	0000	0		CCS	A	
0540	REF	2	LAST	86	03,7024	0	7030	0		TC	DDVOK	
0541	REF	5	LAST	86	03,7025	0	3062	0		TC	CCSHOLE	
0542	REF	3	LAST	86	03,7026	0	7132	0		TC	DPDOFLO	TROUBLE HERE
0543	REF	4	LAST	86	03,7027	0	7132	0		TC	DPDOFLO	AS WELL AS WHEN C(BUF,BUF+1)=C(MPAC,+1)
0544	REF	24	LAST	84	03,7030	3	5501	0	DDVOK	CAF	ZERO	
0545	REF	96	LAST	86	03,7031	6	0115	1		AD	MPAC	
0546	REF	1			03,7032	0	7046	1		TC	DPDNORT	TO NORMALIZE

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0547	REF	60	LAST	86	03,7033	3	0001	0	SQRTDIV	XCH	Q	ENTRY FROM SQRT ROUTINE
0548	REF	2	LAST	58	03,7034	5	0076	0		TS	TEMQ3	
0549	REF	1			03,7035	0	7060	0		TC	DVSTART	
0550	REF	30	LAST	86	03,7036	3	0100	0	DPDNORM	XCH	BUF +1	
0551					03,7037	6	0000	1		DOUBLE		
0552	REF	31	LAST	87	03,7040	5	0100	0		TS	BUF +1	
0553	REF	25	LAST	86	03,7041	3	5501	0		CAF	ZERO	
0554	REF	32	LAST	87	03,7042	6	0077	1		AD	BUF	
0555	REF	33	LAST	87	03,7043	6	0077	1		AD	BUF	
0556	REF	34	LAST	87	03,7044	5	0077	1		TS	BUF	
0557	REF	5	LAST	81	03,7045	0	6367	0		TC	SL1 +3	TO DOUBLE MPAC
0558	REF	3	LAST	43	03,7046	5	0022	1	DPDNORT	TS	CYL	TO LOOK AT BIT 14
0559	REF	4	LAST	87	03,7047	1	0022	0		CCS	CYL	
0560	REF	1			03,7050	0	7036	0		TC	DPDNORM	
0561					03,7051	0	7053	0		TC	+2	
0562	REF	2	LAST	87	03,7052	0	7060	0		TC	DVSTART	
0563	REF	35	LAST	87	03,7053	3	0100	0		XCH	BUF +1	HIGH ORDER ZERO
0564	REF	36	LAST	87	03,7054	3	0077	1		XCH	BUF	
0565	REF	97	LAST	86	03,7055	3	0116	1		XCH	MPAC +1	SET MPAC +1 TO ZERO
0566	REF	98	LAST	87	03,7056	5	0115	1		TS	MPAC	
0567	REF	2	LAST	86	03,7057	0	7046	1		TC	DPDNORT	AND TRY AGAIN

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0568	REF	37	LAST	87	03,7060	3	0077	1	DVSTART	XCH	BUF	OK
0569	REF	2	LAST	39	03,7061	2	5777	1		INDEX	OPOVF	
0570	REF	99	LAST	87	03,7062	5	0115	1		DV	MPAC	
0571	REF	11	LAST	64	03,7063	5	0034	0		TS	OVCTR	
0572	REF	3	LAST	88	03,7064	2	5777	1		INDEX	OPOVF	
0573	REF	100	LAST	88	03,7065	4	0116	0		MP	MPAC +1	
0574	REF	61	LAST	87	03,7066	6	0001	0	-1/2+2	AD	Q	COMPLIMENT OF REMAINDER.
0575	REF	53	LAST	86	03,7067	4	0000	0		CS	A	
0576	REF	38	LAST	88	03,7070	6	0100	0		AD	BUF +1	
0577					03,7071	5	0000	1		OVSX		
0578					03,7072	0	7075	1		TC	+3	IF NOT
0579	REF	4	LAST	88	03,7073	2	5777	1		INDEX	OPOVF	IF OVERFLEW
0580	REF	101	LAST	88	03,7074	6	0115	1		SJ	MPAC	
0581	REF	39	LAST	88	03,7075	5	0077	1	+3	TS	BUF	
0582	REF	54	LAST	88	03,7076	1	0000	0		CCS	A	
0583	REF	20	LAST	83	03,7077	6	4516	1		AD	ONE	
0584					03,7100	0	7102	0		TC	+2	
0585	REF	21	LAST	88	03,7101	6	4516	1		AD	ONE	
0586					03,7102	2	5777	1	+2	EXTEND		WE NOW HAVE ABS(CORRECT BUF)
0587	REF	102	LAST	88	03,7103	6	0115	1		SJ	MPAC	
0588	REF	55	LAST	88	03,7104	1	0000	0		CCS	A	
0589	REF	22	LAST	88	03,7105	6	4516	1		AD	ONE	
0590					03,7106	0	7110	0		TC	+2	
0591					03,7107	0	7113	0		TC	+4	
0592	REF	40	LAST	88	03,7110	3	0077	1	+2	XCH	BUF	
0593					03,7111	6	0000	1		DOUBLE		
0594	REF	56	LAST	88	03,7112	1	0000	0		CCS	A	
0595	REF	41	LAST	88	03,7113	3	0077	1	+4	XCH	BUF	
0596					03,7114	0	7116	0		TC	+2	
0597	REF	42	LAST	88	03,7115	4	0077	0		CS	BUF	
0598	REF	5	LAST	88	03,7116	2	5777	1		INDEX	OPOVF	
0599	REF	103	LAST	88	03,7117	5	0115	1		DV	MPAC	

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0600	REF 104	LAST 88	03,7120	5 0116 1	DPDSGNT	TS	MPAC +1
0601	REF 49	LAST 86	03,7121	1 0102 0		CCS	TEM2
0602	REF 1		03,7122	0 7130 1		TC	POSQUOT
0603	REF 105	LAST 89	03,7123	4 0116 0		CS	MPAC +1
0604	REF 106	LAST 89	03,7124	5 0116 1		TS	MPAC +1
0605	REF 12	LAST 88	03,7125	4 0034 1		CS	OVCTR
0606	REF 107	LAST 89	03,7126	5 0115 1		TS	MPAC
0607	REF 3	LAST 87	03,7127	0 0076 0		TC	TEMQ3
0608	REF 13	LAST 89	03,7130	3 0034 0	POSQUOT	XCH	OVCTR
0609			03,7131	0 7126 0		TC	-3
0610	REF 50	LAST 89	03,7132	1 0102 0	DPDOFLO	CCS	TEM2
0611	REF 9	LAST 65	03,7133	3 5503 1		CAF	TWO
0612	REF 4	LAST 71	03,7134	6 4335 0		AD	NEG1
0613	REF 7	LAST 79	03,7135	5 0122 0		TS	OVFIND
0614			03,7136	2 5777 1		EXTEND	
0615	REF 4	LAST 83	03,7137	4 4476 1		MP	POS MAX
0616	REF 6	LAST 64	03,7140	3 0003 1		XCH	LP
0617	REF 108	LAST 89	03,7141	5 0116 1		TS	MPAC +1
0618	REF 2	LAST 89	03,7142	0 7126 0		TC	POSQUOT -2

SET MPAC = +- POS MAX

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0619	REF	62	LAST	88	03,7143	3	0001	0	TSGNABS	XCH	Q	SIGNUM AND ABSOLUTE VALUE
0620	REF	1			03,7144	5	0104	1		TS	TEMQ2	
0621	REF	2	LAST	82	03,7145	0	7154	0		TC	TPAGREE	

0622	REF	57	LAST	88	03,7146	1	0000	0	CCS	A	TEST	SIGNUM
0623	REF	23	LAST	88	03,7147	6	4516	1	AD	ONE		
0624	REF	2	LAST	90	03,7150	0	0104	1	TC	TEMQ2		

0625	REF	6	LAST	76	03,7151	0	4740	0	TC	MPACCOM	COMPLEMENT IF NEGATIVE
0626	REF	24	LAST	90	03,7152	4	4516	0	CS	ONE	
0627	REF	3	LAST	90	03,7153	0	0104	1	TC	TEMQ2	

0628	REF	63	LAST	90	03,7154	3	0001	0	TPAGREE	XCH	Q	FORCE SIGN AGREEMENT IN TP WORD IN MPAC
0629	REF	1			03,7155	5	0103	0		TS	TEMQ	
0630	REF	7	LAST	77	03,7156	0	6021	1		TC	BRANCH	
0631	REF	1			03,7157	0	7172	1		TC	SGN=+	
0632	REF	1			03,7160	0	7165	1		TC	SGN=0	

0633	REF	5	LAST	89	03,7161	4	4476	1	CS	POSMAX
0634	REF	1			03,7162	5	0101	1	TS	SGNDMAX
0635	REF	25	LAST	90	03,7163	4	4516	0	CS	ONE
0636	REF	1			03,7164	0	7175	0	TC	SGFORCE

0637	REF	26	LAST	87	03,7165	3	5501	0	SGN=0	CAF	ZERO	
0638	REF	109	LAST	89	03,7166	5	0115	1		TS	MPAC	
0639	REF	110	LAST	90	03,7167	5	0116	1		TS	MPAC	+1
0640	REF	111	LAST	90	03,7170	5	0117	0		TS	MPAC	+2
0641	REF	2	LAST	90	03,7171	0	0103	0		TC	TEMQ	

0642	REF	6	LAST	90	03,7172	3	4476	0	SGN=+	CAF	POSMAX
0643	REF	2	LAST	90	03,7173	5	0101	1		TS	SGNDMAX
0644	REF	26	LAST	90	03,7174	3	4516	1		CAF	ONE

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0645	REF	112	LAST	90	03,7175	6	0117	0	SGFORCE	AD	MPAC +2
0646	REF	3	LAST	90	03,7176	6	0101	1		AD	SGNDMAX
0647	REF	113	LAST	91	03,7177	5	0117	0		TS	MPAC +2
0648	REF	27	LAST	90	03,7200	3	5501	0		CAF	ZERO
0649	REF	114	LAST	91	03,7201	6	0116	1		AD	MPAC +1
0650	REF	4	LAST	91	03,7202	6	0101	1		AD	SGNDMAX
0651	REF	115	LAST	91	03,7203	5	0116	1		TS	MPAC +1
0652	REF	28	LAST	91	03,7204	3	5501	0		CAF	ZERO
0653	REF	116	LAST	91	03,7205	6	0115	1		AD	MPAC
0654	REF	5	LAST	91	03,7206	6	0101	1		AD	SGNDMAX
0655	REF	117	LAST	91	03,7207	5	0115	1		TS	MPAC
0656					03,7210		00017	1	SBITMASK	OCT	17
0657	REF	3	LAST	90	03,7211	0	0103	0		TC	TEMQ

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0658	REF	2	LAST	75	03,7212	0 6263 0	UNIT	TC	ABVAL	UNIT VECTOR ROUTINE - START BY GETTING
A0659										LENGTH
0660	REF	2	LAST	75	03,7213	0 6275 1		TC	VSRI	LEAVES 1/2 UNIT VECTORS
0661	REF	2	LAST	38	03,7214	1 0215 0		CCS	NEWJOB	ALLOW FOR INTERRUPTS
0662	REF	1			03,7215	0 7263 1		TC	UNITRUPT	SO WE CAN RETURN IN BASIC
0663	REF	24	LAST	79	03,7216	6 0070 0	UNITRSM	AD	VACLOC	RETURNS HERE FROM BREAKPOINT IF CALLED.
0664	REF	69	LAST	79	03,7217	5 0062 0		TS	ADDRWD	
0665	REF	10	LAST	89	03,7220	3 5503 1		CAF	TWO	
0666	REF	7	LAST	86	03,7221	5 0110 1		TS	DVSW	NON-ZERO FOR BACKWARDS DIVIDE
0667	REF	6	LAST	45	03,7222	5 0112 0	UNITLOOP	TS	COMPON	
0668	REF	118	LAST	91	03,7223	4 0115 0		CS	MPAC	
0669	REF	58	LAST	90	03,7224	4 0000 0		CS	A	
0670	REF	70	LAST	92	03,7225	2 0062 1		INDEX	ADDRWD	
0671					03,7226	3 0000 1		XCH	0	LENGTH TO COMPONENT AND COMPONENT TO BUF
0672	REF	43	LAST	88	03,7227	5 0077 1		TS	BUF	
0673	REF	119	LAST	92	03,7230	4 0116 0		CS	MPAC +1	
0674	REF	59	LAST	92	03,7231	4 0000 0		CS	A	
0675	REF	71	LAST	92	03,7232	2 0062 1		INDEX	ADDRWD	
0676					03,7233	3 0001 0		XCH	1	
0677	REF	44	LAST	92	03,7234	5 0100 0		TS	BUF +1	
0678					03,7235	3 7241 1		CAF	+4	CALL BACKWARDS DIVIDE
0679	REF	4	LAST	89	03,7236	5 0076 0		TS	TEMQ3	
0680	REF	29	LAST	91	03,7237	3 5501 0		CAF	ZERO	
0681	REF	2	LAST	58	03,7240	0 6776 1		TC	DDVO	
0682					03,7241	0 7242 1		TC	+1	
0683	REF	120	LAST	92	03,7242	3 0115 1		XCH	MPAC	RESULT BACK TO COMPONENT BRINGING BACK
0684	REF	72	LAST	92	03,7243	2 0062 1		INDEX	ADDRWD	LENGTH
0685					03,7244	3 0000 1		XCH	0	
0686	REF	121	LAST	92	03,7245	5 0115 1		TS	MPAC	
0687	REF	122	LAST	92	03,7246	3 0116 1		XCH	MPAC +1	
0688	REF	73	LAST	92	03,7247	2 0062 1		INDEX	ADDRWD	
0689					03,7250	3 0001 0		XCH	1	
0690	REF	123	LAST	92	03,7251	5 0116 1		TS	MPAC +1	
0691	REF	3	LAST	59	03,7252	0 5242 0		TC	AD2	INCREMENT ADDRWD
0692	REF	7	LAST	92	03,7253	1 0112 1		CCS	COMPON	
0693	REF	1			03,7254	0 7222 1		TC	UNITLOOP	
0694	REF	11	LAST	92	03,7255	4 5503 0		CS	TWO	STORE LENGTH OF ARGUMENT IN REGISTERS 30
0695	REF	25	LAST	92	03,7256	6 0070 0		AD	VACLOC	
0696	REF	51	LAST	89	03,7257	5 0102 1		TS	TEM2	AND 31 OF VAC AREA.
0697	REF	13	LAST	81	03,7260	3 4772 1		CAF	DAD2 +4	
0698	REF	5	LAST	73	03,7261	0 5041 1		TC	BT02	
0699	REF	29	LAST	85	03,7262	0 4024 0		TC	DANZIG	

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0700	REF	9	LAST	69	03,7263	4	0061	1	UNITRUPT	CS	BANKSET	REQUESTS FOR INTERPRETIVE INTERRUPT COME HERE DURING THE UNIT OPERATION. SINCE WE DESIRE TO RETURN IN BASIC BUT BUT STILL SAVE THE INTERPRETER CENTRALS (BANKSET AND LOC)
0701	REF	124	LAST	92	03,7264	5	0117	0		TS	MPAC +2	
0702	REF	7	LAST	52	03,7265	3	0120	1		XCH	LOC	
0703	REF	8	LAST	76	03,7266	2	0067	1		INDEX	FIXLOC	
0704					03,7267	5	0036	1		TS	30D	
0705	REF	1			03,7270	0	2101	0		TC	CHANG1	
0706	REF	125	LAST	93	03,7271	4	0117	1		CS	MPAC +2	ON RETURN, RESTORE AS BEFORE
0707	REF	10	LAST	93	03,7272	5	0061	0		TS	BANKSET	
0708	REF	9	LAST	93	03,7273	2	0067	1		INDEX	FIXLOC	
0709					03,7274	3	0036	1		XCH	30D	
0710	REF	8	LAST	93	03,7275	5	0120	1		TS	LOC	
0711	REF	30	LAST	92	03,7276	3	5501	0		CAF	ZERO	
0712	REF	1			03,7277	0	7216	0		TC	UNITRSM	ENTER UNIT DIVIDE LOOP.
0713	REF	14	LAST	92	03,7300	3	4772	1	MPACSR1	CAF	DAD2 +4	
0714	REF	10	LAST	75	03,7301	5	0064	0	SR1	TS	TEM11	SHIFTS RIGHT ONE USING ADDRESS IN A
0715	REF	60	LAST	92	03,7302	2	0000	0		INDEX	A	
0716					03,7303	3	0000	1		XCH	0	
0717	REF	6	LAST	88	03,7304	2	5777	1		INDEX	OPOVF	
0718	REF	4	LAST	85	03,7305	4	4522	1		MP	HALF	
0719	REF	11	LAST	93	03,7306	2	0064	1		INDEX	TEM11	
0720					03,7307	5	0000	1		TS	0	
0721	REF	12	LAST	93	03,7310	2	0064	1		INDEX	TEM11	
0722					03,7311	3	0001	0		XCH	1	
0723	REF	3	LAST	43	03,7312	5	0021	1		TS	SR	
0724	REF	4	LAST	93	03,7313	3	0021	1		XCH	SR	
0725	REF	7	LAST	89	03,7314	6	0003	1		AD	LP	
0726	REF	13	LAST	93	03,7315	2	0064	1		INDEX	TEM11	
0727					03,7316	5	0001	0		TS	1	
0728	REF	64	LAST	90	03,7317	0	0001	0		TC	Q	

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0729	REF	31	LAST	93	03,7320	3 5501 0	SQRT2	CAF	ZERO	ENTRY TO IGNORE C(MPAC+2)
0730	REF	126	LAST	93	03,7321	5 0117 0		TS	MPAC +2	
0731	REF	65	LAST	93	03,7322	3 0001 0	SQRT3	XCH	Q	HERE TO TREAT TRIPLE-PRECISION CASES
0732	REF	4	LAST	90	03,7323	5 0104 1		TS	TEMQ2	
0733	REF	3	LAST	90	03,7324	0 7154 0		TC	TPAGREE	FORCE SIGN AGREEMENT
0734	REF	61	LAST	93	03,7325	1 0000 0		CCS	A	TEST SIGNUM
0735	REF	1			03,7326	0 7336 0		TC	SETNORM	PNZ - OK.
0736	REF	5	LAST	94	03,7327	0 0104 1		TC	TEMQ2	FAST EXIT FOR ZERO ARGUMENT
0737	REF	127	LAST	94	03,7330	1 0115 0		CCS	MPAC	IF ARGUMENT WAS NEGATIVE BUT MAJOR PART
0738	REF	2	LAST	82	03,7331	0 3044 1		TC	ABORT	(MPAC IS NEGATIVE) IS ZERO, ANSWER IS
0739					03,7332	01302 1		OCT	01302	TAKEN AS ZERO WITH NO FURTHER ACTION.
0740					03,7333	0 7331 1		TC	-2	IF NON-ZERO, IT IS ASSUMED A TRANSIENT
A0741										ERROR HAS PRODUCED THE BAD DATA.
0742	REF	128	LAST	94	03,7334	5 0116 1		TS	MPAC +1	ARGUMENT NEGATIVE BUT MORE THAN -10-4.
0743	REF	6	LAST	94	03,7335	0 0104 1		TC	TEMQ2	SET MPAC,+1 TO ZERO AND EXIT.
0744	REF	74	LAST	92	03,7336	5 0062 0	SETNORM	TS	ADDRWD	SET NORMALIZATION COUNT TO ZERO
0745	REF	129	LAST	94	03,7337	4 0115 0		CS	MPAC	
0746	REF	5	LAST	87	03,7340	5 0022 1		TS	CYL	WE WILL USE A/2, SO MUST CHECK FOR
0747	REF	6	LAST	94	03,7341	1 0022 0		CCS	CYL	NORMALIZATION FIRST
0748	REF	1			03,7342	0 7300 0		TC	MPACSR1	NORMALIZED - SHIFT RIGHT ONE.
0749	REF	1			03,7343	0 7405 1		TC	ARGHI	
0750	REF	1			03,7344	0 7346 1		TC	SRTEST	LESS THAN 1/2 - SEE IF AT LEAST 1/8.
0751	REF	1			03,7345	0 7353 0		TC	A0=0	MAJOR PART (POSSIBLY MINOR PART) = 0.
0752	REF	1			03,7346	6 7066 0	SRTEST	AD	-1/2+2	SEE IF ARG GREATER THAN OR EQUAL TO 1/4.
0753	REF	62	LAST	94	03,7347	1 0000 0		CCS	A	
0754	REF	2	LAST	94	03,7350	0 7300 0		TC	MPACSR1	IT IS - SHIFT RIGHT ONE AND GO TO ARGLO.
0755	REF	1			03,7351	0 7374 0		TC	ARGLO	(+0 WAS IMPOSSIBLE THIS CCS.)
0756	REF	1			03,7352	0 7362 1		TC	SQRTNORM +1	LESS THAN 1/4 - PUT IN EFFECTIVE RIGHT
A0757										BY SHIFTING LEFT ONLY ONCE WHEN ADDING
A0758										ONE TO THE RIGHT SHIFT COUNT.

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0759	REF	130	LAST	94	03,7353	3	0117	0	A0=0	XCH	MPAC +2	MOVE ARGUMENT UP
0760	REF	131	LAST	95	03,7354	3	0116	1		XCH	MPAC +1	
0761	REF	132	LAST	95	03,7355	3	0115	1		XCH	MPAC	
0762	REF	75	LAST	94	03,7356	6	0062	0		AD	ADDRWD	
0763	REF	1			03,7357	6	5362	0		AD	SEVEN	INCREASE SHIFT COUNT BY 14/2 = 7
0764	REF	2	LAST	94	03,7360	0	7336	0		TC	SETNORM	
0765	REF	6	LAST	87	03,7361	0	6364	0	SQRTNORM	TC	SL1	
0766	REF	27	LAST	90	03,7362	3	4516	1		CAF	ONE	ARGUMENT LESS THAN 1/8, SO SHIFT IT LEFT
0767	REF	76	LAST	95	03,7363	6	0062	0		AD	ADDRWD	TWO PLACES AND INCREASE SHIFT COUNT FOR
0768	REF	77	LAST	95	03,7364	5	0062	0		TS	ADDRWD	RESULT
0769	REF	7	LAST	95	03,7365	0	6364	0		TC	SL1	
0770	REF	7	LAST	94	03,7366	5	0022	1		TS	CYL	
0771	REF	8	LAST	95	03,7367	4	0022	0		CS	CYL	

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0772	REF	9	LAST	95	03,7370	1 0022 0	NORMTEST	CCS	CYL	
0773	REF	10	LAST	96	03,7371	1 0022 0		CCS	CYL	
0774	REF	2	LAST	94	03,7372	0 7361 1		TC	SQRTNORM	HERE IF LESS THAN 1/8
0775	REF	2	LAST	94	03,7373	0 7405 1		TC	ARGHI	HERE IF AT LEAST 1/4, LESS THAN 1/2
0776	REF	1			03,7374	3 7401 0	ARGLO	CAF	SLOPELO	HERE IF AT LEAST 1/8, LESS THAN 1/4
0777	REF	7	LAST	93	03,7375	2 5777 1		INDEX	OPOVF	
0778	REF	133	LAST	95	03,7376	4 0115 0		MP	MPAC	
0779	REF	1			03,7377	6 7402 0		AD	BIASLO	$X0/2 = .8324(A0/2) + .2974/2$
0780	REF	3	LAST	96	03,7400	0 7411 1		TC	ARGHI +4	
0781					03,7401	32506 0	SLOPELO	DEC	.8324	
0782					03,7402	04604 1	BIASLO	DEC	.2974 B-1	
0783					03,7403	22650 1	SLOPEHI	DEC	.5884	
0784					03,7404	06552 0	BIASHI	DEC	.4192 B-1	
0785	REF	1			03,7405	3 7403 1	ARGHI	CAF	SLOPEHI	
0786	REF	8	LAST	96	03,7406	2 5777 1		INDEX	OPOVF	
0787	REF	134	LAST	96	03,7407	4 0115 0		MP	MPAC	
0788	REF	1			03,7410	6 7404 0		AD	BIASHI	
0789	REF	135	LAST	96	03,7411	3 0115 1	+4	XCH	MPAC	$X0/2$ TO MPAC
0790	REF	45	LAST	92	03,7412	5 0077 1		TS	BUF	$A0/2$ TO BUF
0791	REF	52	LAST	92	03,7413	5 0102 1		TS	TEM2	SET UP POSITIVE QUOTIENT SIGNAL AND
0792	REF	32	LAST	94	03,7414	3 5501 0		CAF	ZERO	
0793	REF	136	LAST	96	03,7415	3 0116 1		XCH	MPAC +1	ZERO LOW-ORDER DIVIDEND FOR DP DIVIDE
0794	REF	46	LAST	96	03,7416	5 0100 0		TS	BUF +1	$A1/2$ TO BUF+1. $A2$ NOW DISCARDED
0795	REF	47	LAST	96	03,7417	4 0077 0		CS	BUF	
0796	REF	9	LAST	96	03,7420	2 5777 1		INDEX	OPOVF	
0797	REF	137	LAST	96	03,7421	5 0115 1		DV	MPAC	$-(A0/2)/(X0/2)$.
0798	REF	5	LAST	93	03,7422	5 0021 1		TS	SR	
0799	REF	6	LAST	96	03,7423	4 0021 0		CS	SR	
0800	REF	138	LAST	96	03,7424	6 0115 1		AD	MPAC	$X1$ IS GOOD TO 14 BITS
0801	REF	139	LAST	96	03,7425	5 0115 1		TS	MPAC	$X1 = X0/2 + ((A0/2)/(X0/2))/2$
0802	REF	1			03,7426	5 0101 1		TS	TEM3	SAVE $X1$ FOR ADDITION
0803	REF	1			03,7427	0 7033 0		TC	SQRTDIV	GO TO FORM DP QUOTIENT OF $A0/2$, $A1/2$
0804	REF	2	LAST	96	03,7430	3 0101 1		XCH	TEM3	OVER $X1$, 0. RESULT IN MPAC, MPAC +1
0805	REF	10	LAST	96	03,7431	2 5777 1		INDEX	OPOVF	
0806	REF	5	LAST	93	03,7432	4 4522 1		MP	HALF	
0807	REF	140	LAST	96	03,7433	6 0115 1		AD	MPAC	
0808	REF	14	LAST	89	03,7434	5 0034 0		TS	OVCTR	AND MAYBE SKIP, IF ARG WAS NEAR POSMAX

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0809					03,7435	0 7441 1		TC	+4	IF NO OVERFLOW
0810	REF	7	LAST	90	03,7436	3 4476 0		CAF	POSMAX	
0811	REF	141	LAST	96	03,7437	5 0116 1		TS	MPAC +1	
0812					03,7440	0 7445 0		TC	+5	
0813	REF	8	LAST	93	03,7441	3 0003 1	+4	XCH	LP	FOR NORMAL CASES
0814	REF	142	LAST	97	03,7442	6 0116 1		AD	MPAC +1	ABOVE AND X1/2
0815	REF	143	LAST	97	03,7443	3 0116 1		XCH	MPAC +1	
0816	REF	15	LAST	96	03,7444	3 0034 0		XCH	OVCTR	
0817	REF	144	LAST	97	03,7445	5 0115 1	+5	TS	MPAC	
0818	REF	33	LAST	96	03,7446	3 5501 0		CAF	ZERO	ZERO MPAC+2 SO SHIFT LEFT MAKES SENSE.
0819	REF	145	LAST	97	03,7447	5 0117 0		TS	MPAC +2	
0820	REF	78	LAST	95	03,7450	1 0062 1		CC5	ADDRWD	RE-NORMALIZE IF COUNT NON-ZERO
0821	REF	3	LAST	74	03,7451	0 6236 0		TC	SHIFTR +3	FITS IN WITH MAIN SHIFT LOOP
0822	REF	7	LAST	94	03,7452	0 0104 1		TC	TEMQ2	NO RE-SCALING REQUIRED
0823	REF	18	LAST	76	03,7453	4 0065 0	SQRTS	CS	MODE	INTERPRETER LINKAGE
0824					03,7454	6 0000 1		DOUBLE		TAKE APPROPRIATE SQRT
0825	REF	63	LAST	94	03,7455	2 0000 0		INDEX	A	
0826					03,7456	0 7455 1		TC	-1	
0827	REF	2	LAST	83	03,7457	0 7320 1		TC	SQRT2	FOR DP
0828	REF	30	LAST	92	03,7460	0 4024 0		TC	DANZIG	
0829	REF	2	LAST	75	03,7461	0 7322 0		TC	SQRT3	
0830	REF	31	LAST	97	03,7462	0 4024 0		TC	DANZIG	
0831	REF	1				5363	NEG13	EQUALS	MINUS13	
0832	REF	32	LAST	97		4024	DMOVE	EQUALS	DANZIG	LOADING ONLY
0833	REF	33	LAST	97		4024	VMOVE	EQUALS	DANZIG	
0834	REF	12	LAST	92	03,7463	4 5503 0	TMOVE	CS	TWO	SET MODE TO TRIPLE FOR TP OPERATIONS
0835	REF	3	LAST	75	03,7464	0 5240 1		TC	DPEXIT +1	

L 001 EXECUTIVE

USER'S OWN PAGE NO. 1

R0001 EXECUTIVE PROGRAMS
R0002 -----

0003						2046		BANK	1	
0004	REF	3	LAST	16		2046	5 0577 1	FINDVAC	TS	NEWPRIO
0005	REF	66	LAST	94		2047	3 0001 0		XCH	Q
0006	REF	1				2050	0 2065 0		TC	EXECCOM
0007	REF	1				2051	0 6004 0		TC	FINDVAC2
										PROGRAM TO FIND AN AVAILABLE VAC
0008	REF	4	LAST	98		2052	5 0577 1	NOVAC	TS	NEWPRIO
0009	REF	67	LAST	98		2053	3 0001 0		XCH	Q
0010	REF	2	LAST	98		2054	0 2065 0		TC	EXECCOM
0011	REF	34	LAST	97		2055	3 5501 0		CAF	ZERO
0012	REF	4	LAST	16		2056	5 0574 1		TS	EXECTEM3
0013	REF	1				2057	0 6027 1		TC	NOVAC2
										ENTRY EXCLUSIVELY FOR BASIC JOBS NOT
0014	REF	3	LAST	16		2060	5 0573 0	JOBWAKE	TS	EXECTEM2
0015	REF	68	LAST	98		2061	1 0001 1		CCS	Q
0016	REF	4	LAST	17		2062	5 0600 1		TS	WTEXTIT
0017	REF	1				2063	0 2071 0		TC	EXECSW
0018	REF	1				2064	0 6110 1		TC	JOBWAKE2
										ENTRY HERE TO RE-ACTIVATE A SLEEPING JOB
0019	REF	5	LAST	98		2065	5 0600 1	EXECCOM	TS	WTEXTIT
0020	REF	64	LAST	97		2066	2 0000 0		INDEX	A
0021						2067	3 0000 1		CAF	0
0022	REF	4	LAST	98		2070	5 0573 0		TS	EXECTEM2
										PICK UP JOB OR TASK ADDRESS.
										(USED BY FINDVAC, NOVAC, AND WAITLIST)
0023	REF	2	LAST	35		2071	3 2075 1	EXECSW	CAF	EXECBANK
0024	REF	20	LAST	69		2072	3 0015 0		XCH	BANKREG
0025	REF	3	LAST	16		2073	5 0572 1		TS	EXECTEM1
0026	REF	69	LAST	98		2074	0 0001 0		TC	Q
										CALL IN EXEC BANK, SAVING RETURN.
0027	REF	2	LAST	98		2075	10004 1	EXECBANK	CADR	FINDVAC2
0028	REF	21	LAST	98		2076	5 0015 0	FOUNOVAC	TS	BANKREG
0029	REF	6	LAST	98		2077	2 0600 0		INDEX	WTEXTIT
0030						2100	0 0001 0		TC	1
										COMES HERE TO RETURN FROM FINDVAC,
										NOVAC, OR JOBWAKE.

L 001 EXECUTIVE

USER'S OWN PAGE NO. 2

P0031 CALLS TO FINDVAC BEGIN HERE, SNATCHING AN AVAILABLE VAC AREA.

0032					04,6000		SETLOC 10000		EXEC/WAITLIST BANK.
0033	REF	1			04,6000	0 6705 0	SLAPB TC	SLAP1	
0034	REF	1			04,6001	0 7363 0	KEYRUPTC TC	KEYRUPT1	STANDARD LOC. DONT MOVE
0035	REF	1			04,6002	0 6653 1	MODROUTB TC	MODROUT	STANDARD LOC. DONT MOVE
0036	REF	1			04,6003	0 6525 0	SVCT3 TC	SVCT3X	STANDARD LOC.
0037	REF	1			04,6004	1 0216 0	FINDVAC2 CCS	VAC1USE	C(VAC1USE) = TC VAC1USE IF VAC1 IS AVAILABLE, OR +0 IF IT IS IN USE.
0038	REF	1			04,6005	0 6020 0	TC	FV1	
0039	REF	1			04,6006	1 0272 1	CCS	VAC2USE	THE FIRST CCS WITH +0 JUMPS TO THE CORRESPONDING TC ORDER.
0040	REF	2	LAST	99	04,6007	0 6020 0	TC	FV1	
0041	REF	1			04,6010	1 0346 1	CCS	VAC3USE	
0042	REF	3	LAST	99	04,6011	0 6020 0	TC	FV1	
0043	REF	1			04,6012	1 0422 1	CCS	VAC4USE	
0044	REF	4	LAST	99	04,6013	0 6020 0	TC	FV1	
0045	REF	1			04,6014	1 0476 0	CCS	VAC5USE	
0046	REF	5	LAST	99	04,6015	0 6020 0	TC	FV1	
0047	REF	3	LAST	94	04,6016	0 3044 1	TC	ABORT	NO VAC AREAS AVAILABLE.
0048					04,6017	01201 0	OCT	01201	
0049	REF	13	LAST	97	04,6020	6 5503 1	FV1 AD	TWO	TO FORM ADDRESS OF ASSIGNED VAC AREA.
0050	REF	5	LAST	98	04,6021	5 0574 1	TS	EXECTEM3	
0051	REF	5	LAST	98	04,6022	6 0577 1	AD	NEWPRIO) STORE ADDRESS OF VAC1 IN LOW-ORDER) 9 BITS OF NEWPRIO.
0052	REF	6	LAST	99	04,6023	5 0577 1	TS	NEWPRIO	
0053	REF	35	LAST	98	04,6024	3 5501 0	CAF	ZERO) STORE +0 IN VAC1USE, INDICATING USE.)
0054	REF	6	LAST	99	04,6025	2 0574 0	INDEX	EXECTEM3	
0055					04,6026	4 7777 0	TS	0 -1	
0056	REF	1			04,6027	3 6042 1	NOVAC2 CAF	LASTADR	RELATIVE ADDRESS OF LAST REGISTER SET.
0057	REF	2	LAST	17	04,6030	5 0601 0	TS	LOCCTR	
0058	REF	65	LAST	98	04,6031	1 0000 0	CCS	A	PNZ AND -0 ONLY.
0059					04,6032	0 6037 0	TC	+5	
0060	REF	5	LAST	98	04,6033	4 0573 1	12BITSOK CS	EXECTEM2	COMES HERE IF JOB ADDRESS LESS THAN 6K.
0061	REF	1			04,6034	0 6067 0	TC	LOCSET	
0062	REF	4	LAST	99	04,6035	0 3044 1	TC	ABORT	NO REGISTER SETS AVAILABLE.
0063					04,6036	01202 0	OCT	01202	
0064	REF	3	LAST	99	04,6037	2 0601 1	+5 INDEX	LOCCTR	THIS LOOP FINDS THE FIRST AVAILABLE STORAGE AREA FOR CORE REGISTERS FOR THE NEW JOB. EIGHT SETS OF EIGHT REGISTERS.
0065	REF	1			04,6040	1 0124 1	CCS	PRIORITY	
0066	REF	1			04,6041	0 6105 0	TC	NOVAC3	
0067					04,6042	00070 0	LASTADR DEC	56	

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0068 REF 2 LAST 99 04,6043 0 6105 0

TC NOVAC3

NNZ MEANS JOB ASLEEP HERE.

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P0069 NOW THAT REGISTER SETS HAVE BEEN FOUND FOR THE NEW JOB, INITIALIZE THEM AND SET NEWJOB IF CALLED FOR.

0071	REF	4	LAST	99	04,6044	2	0601	1	CORSW	INDEX	LOCCTR	(COMES HERE WITH C(A) = 0). TURN OFF OVFL
0072	REF	8	LAST	89	04,6045	5	0122	0		TS	OVFL	
0073	REF	7	LAST	99	04,6046	6	0577	1		AD	NEWPRIO	SET UP PRIORITY FOR NEW JOB. JOB WAKING ENTERS HERE TO FINISH UP. STORE NEW PRIORITY
0074	REF	5	LAST	101	04,6047	2	0601	1	JOBWAKE4	INDEX	LOCCTR	
0075	REF	2	LAST	99	04,6050	5	0124	0		TS	PRIORITY	PUSHLOC
0076	REF	2	LAST	40	04,6051	3	2261	0		CAF	BANKMASK	
0077	REF	6	LAST	99	04,6052	7	0573	1		MASK	EXECTEM2	PUSHLOC
0078	REF	7	LAST	99	04,6053	6	0574	1		AD	EXECTEM3	
0079	REF	6	LAST	101	04,6054	2	0601	1		INDEX	LOCCTR	PUSHLOC
0080	REF	5	LAST	45	04,6055	5	0123	1		TS	PUSHLOC	
0081	REF	1			04,6056	3	6316	0		CAF	EXEC70K	CREATE PROPER 12 BIT ADDRESS. SEE IF HIGH THREE BITS ZERO.
0082	REF	7	LAST	101	04,6057	7	0573	1		MASK	EXECTEM2	
0083	REF	66	LAST	99	04,6060	1	0000	0		CCS	A	NEEDS SPECIAL TREATMENT IF C(A) NOT ZERO
0084					04,6061	0	6063	1		TC	+2	
0085	REF	1			04,6062	0	6033	1		TC	12BITSOK	
0086	REF	8	LAST	101	04,6063	3	0573	0		XCH	EXECTEM2	LOCSET
0087	REF	4	LAST	69	04,6064	7	4606	1		MASK	LOW10	
0088	REF	2	LAST	44	04,6065	6	4373	1		AD	6K	LOCSET
0089					04,6066	4	0000	0		COM		
0090	REF	7	LAST	101	04,6067	2	0601	1		INDEX	LOCCTR	LOCSET
0091	REF	9	LAST	93	04,6070	5	0120	1		TS	LOC	
0092	REF	3	LAST	92	04,6071	2	0215	0		INDEX	NEWJOB	TEST WHETHER NEW JOB HAS HIGHER PRIORITY THAN PREVIOUS HIGHEST
0093	REF	3	LAST	101	04,6072	4	0124	1		CS	PRIORITY	
0094	REF	8	LAST	101	04,6073	6	0577	1		AD	NEWPRIO	NEW JOB HAS HIGHER PRIORITY. SET NEWJOB, LEAVING LOCCTR UNCHANGED.
0095	REF	67	LAST	101	04,6074	1	0000	0		CCS	A	
0096	REF	8	LAST	101	04,6075	4	0601	1		CS	LOCCTR	NEW JOB HAS HIGHER PRIORITY. SET NEWJOB, LEAVING LOCCTR UNCHANGED.
0097	REF	1			04,6076	0	6102	1		TC	NEWHIGH	
0098					04,6077	0	6100	0		TC	+1	-0 IF PRIORITIES = AND BOTH ARE NOVACS.
0099	REF	4	LAST	98	04,6100	3	0572	1	NOWAKE2	XCH	EXECTEM1	
0100	REF	1			04,6101	0	2076	1	ENDFIND	TC	FOUNDVAC	
0101					04,6102	4	0000	0	NEWHIGH	COM		SET NEWJOB AND RETURN TO CALLER.
0102	REF	4	LAST	101	04,6103	5	0215	1		TS	NEWJOB	
0103	REF	1			04,6104	0	6100	0		TC	ENDFIND -1	
0104	REF	1			04,6105	4	4513	0	NOVAC3	CS	EIGHT	COMES HERE TO EXAMINE NEXT REGISTER SET.
0105	REF	9	LAST	101	04,6106	6	0601	0		AD	LOCCTR	
0106	REF	2	LAST	98	04,6107	0	6030	1		TC	NOVAC2 +1	

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P0107 THE JOBWAKE ROUTINE REACTIVES A SLEEPING JOB, SETTING IT TO BEGIN AT THE GIVEN WAKE ADDRESS.

0109	REF	2	LAST	99	04,6110	3	6042	1	JOBWAKE2	CAF	LASTADR	BEGIN SEARCH FOR REGISTER SET CONTAINING
0110	REF	10	LAST	101	04,6111	5	0601	0		TS	LOCCTR	SLEEPING JOB. WAKE ADDRESS IS IN LOC IN
0111	REF	68	LAST	101	04,6112	1	0000	0		CCS	A	CADR FORM, AS PLACED THERE BY JOBSLEEP.
0112	REF	11	LAST	102	04,6113	2	0601	1		INDEX	LOCCTR	PNZ AND -0 ONLY. SEE IF THIS JOB ASLEEP.
0113	REF	4	LAST	101	04,6114	1	0124	1		CCS	PRIORITY	THIS CCS CANT GO TO TC NOWAKE .
0114	REF	1			04,6115	0	6140	1		TC	JOBWAKE3	PNZ - ACTIVE JOB PRESENT. +0 IMPOSSIBLE.
0115	REF	1			04,6116	0	6143	1		TC	NOWAKE	ALARM - SLEEPING JOB NOT FOUND.
0116					04,6117	0	6121	0		TC	+2	INACTIVE JOB FOUND.
0117	REF	2	LAST	102	04,6120	0	6140	1		TC	JOBWAKE3	-0 - NOT IN USE.
0118	REF	9	LAST	101	04,6121	4	0573	1	+2	CS	EXECTEM2	SEE IF THIS IS THE DESIRED SLEEPING JOB.
0119	REF	12	LAST	102	04,6122	2	0601	1		INDEX	LOCCTR	
0120	REF	10	LAST	101	04,6123	6	0120	1		AD	LOC	
0121	REF	69	LAST	102	04,6124	1	0000	0		CCS	A	
0122	REF	3	LAST	102	04,6125	0	6140	1		TC	JOBWAKE3	SEARCH NEXT SET IF NOT AT END.
0123	REF	6	LAST	86	04,6126	0	3062	0		TC	CCSHOLE	
0124	REF	4	LAST	102	04,6127	0	6140	1		TC	JOBWAKE3	
0125	REF	5	LAST	101	04,6130	3	4606	0		CAF	LOW10	SET UP EXECTEM3 AND PRIORITY SO WE CAN
0126	REF	13	LAST	102	04,6131	2	0601	1		INDEX	LOCCTR	FINISH AT STANDARD CORSW .
0127	REF	6	LAST	101	04,6132	7	0123	0		MASK	PUSHLOC	PROTECT PD SETTING.
0128	REF	8	LAST	101	04,6133	5	0574	1		TS	EXECTEM3	
0129	REF	14	LAST	102	04,6134	2	0601	1		INDEX	LOCCTR	RE-COMPLEMENT PRIORITY AND FINISH UP.
0130	REF	5	LAST	102	04,6135	4	0124	1		CS	PRIORITY	
0131	REF	9	LAST	101	04,6136	5	0577	1		TS	NEWPRIO	
0132	REF	1			04,6137	0	6047	1		TC	JOBWAKE4	
0133	REF	2	LAST	101	04,6140	4	4513	0	JOBWAKE3	CS	EIGHT	ADVANCE TO NEXT REGISTER SET.
0134	REF	15	LAST	102	04,6141	6	0601	0		AD	LOCCTR	
0135	REF	2	LAST	98	04,6142	0	6111	0		TC	JOBWAKE2 +1	
0136	REF	16	LAST	102	04,6143	5	0601	0	NOWAKE	TS	LOCCTR	SET LOCCTR = +0 TO SHOW NO JOB WAS
0137	REF	1			04,6144	0	6100	0		TC	NOWAKE2	AWAKENED.

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P0138 A NEW JOB, OF HIGHER PRIORITY THAN THE PRESENT ONE, CAUSES THE RELA-
 R0139 TIVE ADDRESS (9, 18, ..., 63) OF THE NEW JOB CORE REGISTERS TO BE
 R0140 PLACED IN REGISTER NEWJOB, WHERE IT IS TESTED BY THE INTERPRETER.
 R0141 THE RESULTING BRANCH TO CHANJOB, BELOW, CAUSES A TRADE BETWEEN THE
 R0142 CORE REGISTERS OF THE PRESENT AND NEW JOBS.

0143	REF	2 LAST 101	2101	SETLOC FOUNDVAC +3
0144			2101 2 0017 0	CHANG1 INHINT
0145	REF	3 LAST 98	2102 3 2075 1	CAF EXECBANK
0146	REF	22 LAST 98	2103 3 0015 0	XCH BANKREG
0147			2104 4 0000 0	CDM
0148	REF	11 LAST 93	2105 5 0061 0	TS BANKSET
0149	REF	7 LAST 102	2106 3 0123 1	XCH PUSHLOC
0150	REF	6 LAST 102	2107 7 4606 1	MASK LOW10
0151	REF	8 LAST 103	2110 5 0123 1	TS PUSHLOC
0152	REF	70 LAST 98	2111 4 0001 1	CS Q
0153	REF	1	2112 0 6145 1	TC CHANJOB
0154	REF	12 LAST 76	2113 1 0066 0	CHANG2 CCS NEWEQIND
0155	REF	71 LAST 103	2114 0 0001 0	TC Q
0156			2115 2 0017 0	INHINT
0157	REF	4 LAST 103	2116 3 2075 1	CAF EXECBANK
0158	REF	23 LAST 103	2117 5 0015 0	TS BANKREG
0159	REF	11 LAST 102	2120 3 0120 1	XCH LOC
0160	REF	2 LAST 103	2121 0 6145 1	TC CHANJOB
C0161				

BASIC JOBS COME HERE WHEN C(NEWJOB) NON-ZERO. START BY CALLING IN EXECUTIVE BANK AND SAVING RETURN BANK CODE.

BLANK OUT THE HIGH-ORDER 4 BITS IN PUSHLOC SO THE BANK BITS CAN BE PACKED WITH IT

FOR RETURN, SHOWING THIS WAS A BASIC JOB OFF TO BANK 0

INTERPRETIVE INTERRUPTS START HERE, PROVIDED THE LOAD INDICATOR ISNT ON

CALL IN EXECUTIVE BANK.

WITH C(A) PNZ, SHOWING WE WERE IN INTERP RETER

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0162	REF	2	LAST	102		04,6145		SETLOC	NOWAKE +2	
0163	REF	5	LAST	101	04,6145	2	0215 0	INDEX	NEWJOB	TO BEGIN SWAP OF CORE REGISTERS
0164	REF	12	LAST	103	04,6146	3	0120 1	XCH	LOC	
0165	REF	13	LAST	104	04,6147	5	0120 1	TS	LOC	SAVE PROPER 12 BIT ADDRESS
0166	REF	6	LAST	102	04,6150	3	0124 0	XCH	PRIORITY	
0167	REF	6	LAST	104	04,6151	2	0215 0	INDEX	NEWJOB	
0168	REF	7	LAST	104	04,6152	3	0124 0	XCH	PRIORITY	
0169	REF	8	LAST	104	04,6153	5	0124 0	TS	PRIORITY	
0170	REF	1			04,6154	7	4607 0	MASK	LOW9	TO GET FIXLOC
0171	REF	10	LAST	93	04,6155	5	0067 0	TS	FIXLOC	
0172	REF	1			04,6156	6	4511 0	AD	BIT6	SET UP VACLOC (= FIXLOC + 32D)
0173	REF	26	LAST	92	04,6157	5	0070 0	TS	VACLOC	
0174	REF	12	LAST	103	04,6160	4	0061 1	CS	BANKSET	SAVE BANK
0175	REF	9	LAST	103	04,6161	6	0123 1	AD	PUSHLOC	AND PUSHLOC IN SAME WORD
0176	REF	7	LAST	104	04,6162	2	0215 0	INDEX	NEWJOB	
0177	REF	10	LAST	104	04,6163	3	0123 1	XCH	PUSHLOC	
0178	REF	11	LAST	104	04,6164	5	0123 1	TS	PUSHLOC	
0179	REF	7	LAST	103	04,6165	7	4606 1	MASK	LOW10	
0180	REF	12	LAST	104	04,6166	3	0123 1	XCH	PUSHLOC	
0181					04,6167	4	0000 0	COM		
0182	REF	13	LAST	104	04,6170	6	0123 1	AD	PUSHLOC	WE NOW HAVE COMPLEMENT OF BANK BITS
0183	REF	13	LAST	104	04,6171	5	0061 0	TS	BANKSET	
0184	REF	21	LAST	76	04,6172	4	0121 1	CS	ADRLOC	SAVE MODE AND COMPLEMENT OF ADRLOC IN
0185					04,6173	6	0000 1	DOUBLE		SAME WORD. ADRLOC MUST BE SHIFTED 2
0186					04,6174	6	0000 1	DOUBLE		PLACES TO MAKE ROOM FOR MODE
0187	REF	19	LAST	97	04,6175	6	0065 1	AD	MODE	-0, -1, OR -2
0188	REF	8	LAST	104	04,6176	2	0215 0	INDEX	NEWJOB	
0189	REF	22	LAST	104	04,6177	3	0121 0	XCH	ADRLOC	
0190	REF	7	LAST	96	04,6200	5	0021 1	TS	SR	
0191	REF	3	LAST	67	04,6201	7	4473 1	MASK	THREE	SAVE LOW 2 BITS
0192	REF	1			04,6202	6	4341 0	AD	NEG3	THIS RESULTS IN EITHER -0, -1, OR -2
0193	REF	20	LAST	104	04,6203	5	0065 1	TS	MODE	
0194	REF	8	LAST	104	04,6204	4	0021 0	CS	SR	
0195	REF	9	LAST	104	04,6205	4	0021 0	CS	SR	
0196	REF	23	LAST	104	04,6206	5	0121 0	TS	ADRLOC	

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0197	REF	9	LAST	101	04,6207	1	0122	1	CCS	OVFIND	SAVE C(ORDER) POSITIVE IF C(OVFIND) = 0
0198					04,6210	0	6212	0	TC	+2	AND NEGATIVE OTHERWISE
0199					04,6211	0	6214	0	TC	+3	
0200	REF	11	LAST	52	04,6212	4	0063	0	-CS	ORDER <i>PNZ</i>	
0201					04,6213	0	6215	1	TC	+2	
0202	REF	12	LAST	105	04,6214	3	0063	1	-XCH	ORDER	
0203	REF	9	LAST	104	04,6215	2	0215	0	INDEX	NEWJOB	
0204	REF	10	LAST	105	04,6216	3	0122	0	XCH	OVFIND	
0205	REF	13	LAST	105	04,6217	5	0063	1	TS	ORDER	
0206	REF	70	LAST	102	04,6220	1	0000	0	CCS	A	<i>(OV = OK 02 = OVF A = b(OVF))</i> DETERMINE NEW SETTING OF OVFIND
0207	REF	36	LAST	99	04,6221	3	5501	0	CAF	ZERO	TO ZERO
0208	REF	1			04,6222	0	6226	1	TC	OVFSET	
0209	REF	14	LAST	105	04,6223	4	0063	0	CS	ORDER	ORDER WAS NEGATIVE, MAKE IT POSITIVE
0210	REF	15	LAST	105	04,6224	5	0063	1	TS	ORDER	
0211	REF	28	LAST	95	04,6225	3	4516	1	CAF	ONE	TO SET OVFIND
0212	REF	11	LAST	105	04,6226	5	0122	0	OVFSET TS	OVFIND	

0213	REF	146	LAST	97	04,6227	3	0115	1	XCH	MPAC	TRADE C(MPAC TO MPAC+2)
0214	REF	10	LAST	105	04,6230	2	0215	0	INDEX	NEWJOB	
0215	REF	147	LAST	105	04,6231	3	0115	1	XCH	MPAC	
0216	REF	148	LAST	105	04,6232	5	0115	1	TS	MPAC	<i>b(OVFIND) = PNZ, PZ, NNZ</i>
0217	REF	149	LAST	105	04,6233	3	0116	1	XCH	MPAC +1	<i>OV FIND = +0</i>
0218	REF	11	LAST	105	04,6234	2	0215	0	INDEX	NEWJOB	<i>b(OVFIND) = NZ</i>
0219	REF	150	LAST	105	04,6235	3	0116	1	XCH	MPAC +1	<i>OV FIND = +1</i>
0220	REF	151	LAST	105	04,6236	5	0116	1	TS	MPAC +1	
0221	REF	152	LAST	105	04,6237	3	0117	0	XCH	MPAC +2	
0222	REF	12	LAST	105	04,6240	2	0215	0	INDEX	NEWJOB	
0223	REF	153	LAST	105	04,6241	3	0117	0	XCH	MPAC +2	
0224	REF	154	LAST	105	04,6242	5	0117	0	TS	MPAC +2	

0225	REF	37	LAST	105	04,6243	3	5501	0	CAF	ZERO	
0226	REF	13	LAST	103	04,6244	5	0066	1	TS	NEWQIND	MAKE SURE LOAD INDICATOR OFF.
0227	REF	13	LAST	105	04,6245	5	0215	1	SETNJ TS	NEWJOB	
0228					04,6246	2	0016	1	RELINT		ENABLE INTERRUPT
0229	REF	14	LAST	104	04,6247	1	0120	0	CCS	LOC	C(LOC) PNZ FOR INTERPRETIVE JOBS,
0230	REF	38	LAST	105	04,6250	3	5501	0	CAF	ZERO	
0231	REF	34	LAST	97	04,6251	0	4026	1	TC	DANZIG +2	RETURN TO INTERPRETER
0232	REF	29	LAST	105	04,6252	6	4516	1	AD	ONE	GET ABS(LOC) AND RETURN TO BASIC
0233	REF	79	LAST	97	04,6253	5	0062	0	TS	ADDRWD	
0234	REF	14	LAST	104	04,6254	4	0061	1	CS	BANKSET	GET DESIRED BANKBITS
0235	REF	1			04,6255	0	2122	1	ENDCHANG TC	BASICALL	

0236	REF	2	LAST	38			2122		SETLOC	CHANG2 +7D	TAKE UP WHERE WE LEFT OFF IN FIXED-FIXED
0237	REF	24	LAST	103			2122	5	BASICALL TS	BANKREG	
0238	REF	80	LAST	105			2123	0	TC	ADDRWD	

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0239	REF	5	LAST	103	2124	3	2075	1	ENDOFJOB	CAF	EXECBANK	NORMAL ENDJOB ENTRY.
0240	REF	25	LAST	105	2125	5	0015	0		TS	BANKREG	
0241	REF	1			2126	0	6256	0		TC	ENDJOB1	
0242	REF	15	LAST	105	2127	5	0120	1	JOBSLEEP	TS	LOC	ENTRY HERE TO DE-ACTIVE THIS JOB.
0243	REF	6	LAST	106	2130	3	2075	1		CAF	EXECBANK	LOC IS SET TO THE AWAKENING ADDRESS
0244	REF	26	LAST	106	2131	5	0015	0		TS	BANKREG	SO THE SUBSEQUENT JOBWAKE CAN FIND
0245	REF	1			2132	0	6267	1		TC	JOBSLP1	THE PROPER REGISTER SET.
0246	REF	1					04,6256				SETLOC	ENDCHANG +1
0247					04,6256	2	0017	0	ENDJOB1	INHINT		INTERPRETIVE JOBS FINISH WITH RTB
0248	REF	39	LAST	105	04,6257	4	5501	1		CS	ZERO	TO ENDJOB1
0249	REF	48	LAST	96	04,6260	5	0100	0		TS	BUF +1	ENDJOB USES BUF, BUF +1, AND BUF +2.
0250	REF	9	LAST	104	04,6261	3	0124	0		XCH	PRIORITY	
0251	REF	2	LAST	104	04,6262	7	4607	0		MASK	LOW9	RESTORE AVAILABILITY OF VACI BY SETTING
0252	REF	71	LAST	105	04,6263	1	0000	0		CCS	A	C(VACIUSE) NON-ZERO
0253	REF	72	LAST	106	04,6264	2	0000	0		INDEX	A	
0254					04,6265	5	0000	1		TS	0	
0255	REF	1			04,6266	0	6274	0		TC	EJSCAN	ENDJOB NEED NOT EXAMINE FIRST REG. SET.
0256					04,6267	2	0017	0	JOBSLP1	INHINT		FINISH JOB SLEEP AND START ENDJOB-TYPE
0257	REF	10	LAST	106	04,6270	4	0124	1		CS	PRIORITY	SCAN. COMPLEMENTED PRIORITY REGISTER
0258	REF	11	LAST	106	04,6271	5	0124	0		TS	PRIORITY	SHOWS JOB IS ASLEEP.
0259	REF	40	LAST	106	04,6272	4	5501	1		CS	ZERO	INITIALIZE SEARCH FOR HIGHEST PRIORITY.
0260	REF	49	LAST	106	04,6273	5	0100	0		TS	BUF +1	

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P0261 SCAN FOR THE ACTIVE JOB OF HIGHEST PRIORITY.

0262	REF	12	LAST	106	04,6274	1 0134 0	EJSCAN	CCS	PRIORITY +8D	EACH PRIORITY REGISTER (PRIORITY +8N)
0263	REF	1			04,6275	0 6341 1		TC	EJ1	IS SCANNED. ITS CONTENTS ARE EITHER
0264	REF	7	LAST	102	04,6276	0 3062 0		TC	CCSHOLE	
0265					04,6277	0 6300 1		TC	+1	2. NNZ - AN INACTIVE PRIORITY NUMBER.
0266	REF	13	LAST	107	04,6300	1 0144 1		CCS	PRIORITY +16D	OR 3. -0 - NOT IN USE.
0267	REF	2	LAST	107	04,6301	0 6341 1		TC	EJ1	IF PNZ, CONTROL IS TRANSFERRED TO EJ1
0268	REF	8	LAST	107	04,6302	0 3062 0		TC	CCSHOLE	
0269					04,6303	0 6304 0		TC	+1	PARED WITH THE PREVIOUS HIGHEST
0270	REF	14	LAST	107	04,6304	1 0154 0		CCS	PRIORITY +24D	PRIORITY FOUND. THE CONTENTS OF Q
0271	REF	3	LAST	107	04,6305	0 6341 1		TC	EJ1	SERVE TO LOCATE THE CCS WHICH WAS
0272	REF	9	LAST	107	04,6306	0 3062 0		TC	CCSHOLE	
0273					04,6307	0 6310 0		TC	+1	NEWJOB IS SET TO THE RELATIVE ADDRESS
0274	REF	15	LAST	107	04,6310	1 0164 0		CCS	PRIORITY +32D	OF THE REGISTER SET WITH THE HIGHEST
0275	REF	4	LAST	107	04,6311	0 6341 1		TC	EJ1	ACTIVE PRIORITY AT THE END OF THE SCAN.
0276	REF	10	LAST	107	04,6312	0 3062 0		TC	CCSHOLE	
0277					04,6313	0 6314 1		TC	+1	
0278	REF	16	LAST	107	04,6314	1 0174 1		CCS	PRIORITY +40D	
0279	REF	5	LAST	107	04,6315	0 6341 1		TC	EJ1	
0280					04,6316	70000 0	EXEC70K	OCT	70000	
0281					04,6317	0 6320 0		TC	+1	
0282	REF	17	LAST	107	04,6320	1 0204 0		CCS	PRIORITY +48D	
0283	REF	6	LAST	107	04,6321	0 6341 1		TC	EJ1	
0284	REF	18	LAST	107	04,6322	6 7653 0	-CCSPR	-CCS	PRIORITY	
0285					04,6323	0 6324 1		TC	+1	
0286	REF	19	LAST	107	04,6324	1 0214 1		CCS	PRIORITY +56D	
0287	REF	7	LAST	107	04,6325	0 6341 1		TC	EJ1	CAF WAKEADR
0288	REF	11	LAST	107	04,6326	0 3062 0		TC	CCSHOLE	TC TOBSLEEP
0289					04,6327	0 6330 1		TC	+1	

L 001 EXECUTIVE

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0290	REF	50	LAST	106	04,6330	1	0077	0	CCS	BUF	IF BUF = 0, THE SCAN WAS PART OF
0291					04,6331	0	6333	1	TC	+2	A PRIORITY CHANGE IN WHICH THE NEW
0292	REF	1			04,6332	0	6245	1	TC	SETNJ	PRIORITY IS HIGHEST. GO SET NEWJOB = 0.
0293	REF	73	LAST	106	04,6333	2	0000	0	INDEX	A	PICK UP CCS INSTRUCTION TO GET NEWJOB
0294					04,6334	2	7777	0	CAF	0 -1	SELECT CCS INSTRUCTION.
0295	REF	1			04,6335	6	6322	1	AD	-CCSPR	
0296	REF	14	LAST	105	04,6336	5	0215	1	TS	NEWJOB	RELATIVE ADDRESS ONLY.
0297	REF	16	LAST	106	04,6337	3	0120	1	XCH	LOC	(NO MEANING FOR ENDOFJOB).
0298	REF	3	LAST	103	04,6340	0	6145	1	TC	CHANJOB	
0299	REF	51	LAST	108	04,6341	5	0101	1	TS	BUF +2	STORE NEW PRIORITY
0300	REF	52	LAST	108	04,6342	6	0100	0	AD	BUF +1	- OLD PRIORITY
0301	REF	74	LAST	108	04,6343	1	0000	0	CCS	A	
0302	REF	72	LAST	103	04,6344	3	0001	0	XCH	Q	IF NEW PRIORITY IS LARGER
0303	REF	1			04,6345	0	6351	0	TC	EJ2	
0304					04,6346	3	0000	1	NOOP		IF OLD PRIORITY IS LARGER
0305	REF	73	LAST	108	04,6347	2	0001	1	INDEX	Q	OR EQUAL
0306					04,6350	0	0002	0	TC	2	
0307	REF	53	LAST	108	04,6351	5	0077	1	TS	BUF	SAVE C(Q) TO LOCATE HIGHEST PRIORITY
0308	REF	54	LAST	108	04,6352	4	0101	0	CS	BUF +2	JOB AT END OF SCAN.
0309	REF	55	LAST	108	04,6353	5	0100	0	TS	BUF +1	
0310	REF	56	LAST	108	04,6354	2	0077	0	INDEX	BUF	
0311					04,6355	0	0002	0	TC	2	

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P0312 THE FOLLOWING ROUTINE IS AVAILABLE TO CHANGE THE PRIORITY OF A JOB WHILE IT IS RUNNING UNDER EXECUTIVE
 R0314 CONTROL (IE, IN CORE SET 0). CALLING SEQUENCE IS AS FOLLOWS (NO INHINT NECESSARY):

A0316 CAF NEWPRIO PRIORITY IN BITS 10-14 - ZERO ELSEWHERE.
 A0317 L TC PRIOCHNG

R0318 RETURN IS TO L+1 IMMEDIATELY UNLESS A JOB OF STILL HIGHER PRIORITY IS PRESENT, IN WHICH CASE IT GOES TO CHANJOB
 R0320 BEFORE RETURNING.

0321	REF	1		2133		SETLOC JOBSLEEP +4	
0322				2133	2 0017 0	PRIOCHNG INHINT	PREPARE Q, BANK, AND PUSHLOC (ALA
0323	REF	10 LAST 102		2134	5 0577 1	TS NEWPRIO	CHANG1) IN CASE WE HAVE TO CHANGE JOBS.
0324	REF	74 LAST 108		2135	4 0001 1	CS Q	
0325	REF	17 LAST 108		2136	5 0120 1	TS LOC	
0326	REF	7 LAST 106		2137	3 2075 1	CAF EXECBANK	
0327	REF	27 LAST 106		2140	3 0015 0	XCH BANKREG	
0328	REF	1		2141	0 6356 1	TC PRIOCH2	OFF TO EXECUTIVE BANK.
0329	REF	2 LAST 108		04,6356		SETLOC EJ2 +5	
0330				04,6356	4 0000 0	PRIOCH2 COM	
0331	REF	15 LAST 105		04,6357	5 0061 0	TS BANKSET	
0332	REF	14 LAST 104		04,6360	3 0123 1	XCH PUSHLOC	
0333	REF	8 LAST 104		04,6361	7 4606 1	MASK LOW10	
0334	REF	15 LAST 109		04,6362	5 0123 1	TS PUSHLOC	
0335	REF	3 LAST 106		04,6363	3 4607 1	CAF LOW9	MAKE UP NEW PRIORITY WORD, LEAVING
0336	REF	20 LAST 107		04,6364	7 0124 1	MASK PRIORITY	POSSIBLE VAC ADDRESS INTACT.
0337	REF	11 LAST 109		04,6365	6 0577 1	AD NEWPRIO	
0338	REF	21 LAST 109		04,6366	5 0124 0	TS PRIORITY	
0339				04,6367	4 0000 0	COM	INITIALIZE BUF +1 TO - THIS PRIORITY FOR
0340	REF	57 LAST 108		04,6370	5 0100 0	TS BUF +1	SEARCH FOR HIGHEST PRIORITY.
0341	REF	41 LAST 106		04,6371	3 5501 0	CAF ZERO	SET BUF TO ZERO AS A FLAG FOR END OF
0342	REF	58 LAST 109		04,6372	5 0077 1	TS BUF	SCAN.
0343	REF	2 LAST 106		04,6373	0 6274 0	TC EJSCAN	SCAN FOR HIGHEST PRIORITY.

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P0345 LIST OF PROGRAM PRIORITIES

0346	REF	1	2142	SETLOC	PRI0CHNG	+7
0347	REF	1	4505	PRI01	EQUALS	BIT10
0348	REF	4 LAST 78	4504	PRI02	EQUALS	BIT11
0349			2142 03000 1	PRI03	OCT	03000
0350	REF	1	4503	PRI04	EQUALS	BIT12
0351			2143 05000 1	PRI05	OCT	05000
0352	REF	1	2143	OCT05000	EQUALS	PRI05
0353	REF	3 LAST 101	4373	PRI06	EQUALS	6K
0354			2144 07000 0	PRI07	OCT	07000
0355	REF	2 LAST 48	4502	PRI010	EQUALS	BIT13
0356			2145 11000 1	PRI011	OCT	11000
0357			2146 12000 1	PRI012	OCT	12000
0358			2147 13000 0	PRI013	OCT	13000
0359			2150 14000 1	PRI014	OCT	14000
0360			2151 15000 0	PRI015	OCT	15000
0361			2152 16000 0	PRI016	OCT	16000
0362			2153 17000 1	PRI017	OCT	17000
0363	REF	2 LAST 69	4501	PRI020	EQUALS	BIT14
0364			2154 21000 1	PRI021	OCT	21000
0365			2155 22000 1	PRI022	OCT	22000
0366			2156 23000 0	PRI023	OCT	23000
0367			2157 24000 1	PRI024	OCT	24000
0368			2160 25000 0	PRI025	OCT	25000
0369			2161 26000 0	PRI026	OCT	26000
0370			2162 27000 1	PRI027	OCT	27000
0371			2163 30000 1	PRI030	OCT	30000
0372			2164 31000 0	PRI031	OCT	31000
0373			2165 32000 0	PRI032	OCT	32000
0374			2166 33000 1	PRI033	OCT	33000
0375			2167 34000 0	PRI034	OCT	34000
0376			2170 35000 1	PRI035	OCT	35000
0377			2171 36000 1	PRI036	OCT	36000
0378			2172 37000 0	PRI037	OCT	37000

L WAITLIST

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R0001 CHECK-OUT STATUS - UNIT VERIFICATION COMPLETE MAY, 1965

EXCEPT LONGCALL SECTION.

R0003 DO NOT CHANGE THIS SECTION WITHOUT PRB APPROVAL.

R0004 GROUNDRULE.....DELTA T SHOULD NOT EXCEED 12000 (= 2 MINUTES)

0005				2173				BANK	1	
0006	REF	1		2173	5	0577	1	WAITLIST	TS	DELT
0007	REF	75	LAST	109	2174	3	0001	0	XCH	Q
0008	REF	3	LAST	98	2175	0	2065	0	TC	EXECCOM
0009	REF	1		2176	0	6374	1		TC	WTLST3

STORE DELTA T = TD - T (TD = DESIRED TIME FOR FUTURE ACTION).
PICK UP TASK ADDRESS AND SAVE BANKREG.

0010				04,6374				BANK	4	
0011	REF	1		04,6374	4	0037	1	WTLST3	CS	TIME3
0012				04,6375	6	6376	0		AD	+1
0013	REF	75	LAST	108	04,6376	1	0000	0	CCS	A

CCS A = + 1/4
TEST 1/4 - C(TIME3). IF POSITIVE,
IT MEANS THAT TIME3 OVERFLOW HAS OCCURRED PRIOR TO CS TIME3 AND THAT
C(TIME3) = T - T1, INSTEAD OF 1.0 - (T1 - T). THE FOLLOWING FOUR
ORDERS SET C(A) = TD - T1 + 1 IN EITHER CASE. C(CSQ) = CS Q = 40001
AND C(TSQ) = TS Q = 50001 NOTATION... 1 = 00001, 1.0 = 37777+1

0018	REF	1		04,6377	6	4664	1		AD	CSQ
0019	REF	76	LAST	111	04,6400	4	0000	0	CS	A

OVERFLOW HAS OCCURRED. SET C(A) =
T - T1 + 3/4 - 1

R0020 NORMAL CASE (C(A) MINUS) YIELDS SAME C(A) -(-(1.0-(T1-T))+1/4)-1

0021	REF	1		04,6401	6	4561	1		AD	TSQ
0022	REF	2	LAST	111	04,6402	6	0577	1	AD	DELT

TS Q = - 3/4 + 2
RESULT = TD - T1 + 1
10 W

C0023

L	WAITLIST					USER'S OWN PAGE NO. 2
0024	REF 77 LAST 111	04,6403	1 0000 0	CCS	A	TEST TD = T1 + 1
0025	REF 1	04,6404	6 0552 0	AD	LST1	IF TD = T1 POS, GO TO WTLST5 WITH
0026	REF 1	04,6405	0 6451 1	TC	WTLST5	C(A) = (TD - T1) + C(LST1) = TD-T2+1
0027		04,6406	0 6407 1	TC	+1	
0028	REF 3 LAST 111	04,6407	4 0577 0	CS	DELT	
R0029	NOTE THAT THIS PROGRAM SECTION IS NEVER ENTERED WHEN T-T1 G/E -1,					
R0030	SINCE TD-T1+1 = (TD-T) + (T-T1+1), AND DELTA T = TD-T G/E +1 . (G/E					
R0031	SYMBOL MEANS GREATER THAN OR EQUAL TO). THUS THERE NEED BE NO CON-					
R0032	CERN OVER A PREVIOUS OR IMMINENT OVERFLOW OF TIME3 HERE.					
0033	REF 2 LAST 48	04,6410	6 4522 0	AD	POS1/2	WHEN TD IS NEXT, FORM QUANTITY
0034	REF 3 LAST 112	04,6411	6 4522 0	AD	POS1/2	1.0 - DELTA T = 1.0 - (TD - T)
0035	REF 2 LAST 111	04,6412	3 0037 0	XCH	TIME3	
0036	REF 1	04,6413	6 4563 0	AD	MSIGN	
0037	REF 4 LAST 112	04,6414	6 0577 1	AD	DELT	
0038	REF 5 LAST 112	04,6415	5 0577 1	TS	DELT	
0039	REF 42 LAST 109	04,6416	3 5501 0	CAF	ZERO	
0040	REF 6 LAST 112	04,6417	3 0577 1	XCH	DELT	
0041	REF 2 LAST 112	04,6420	3 0552 0	XCH	LST1	WTLST4
0042	REF 3 LAST 112	04,6421	3 0553 1	XCH	LST1 +1	
0043	REF 4 LAST 112	04,6422	3 0554 0	XCH	LST1 +2	
0044	REF 5 LAST 112	04,6423	3 0555 1	XCH	LST1 +3	
0045	REF 6 LAST 112	04,6424	3 0556 1	XCH	LST1 +4	
00453	REF 7 LAST 112	04,6425	3 0557 0	XCH	LST1 +5	
00456	REF 8 LAST 112	04,6426	3 0560 1	XCH	LST1 +6	
0046	REF 10 LAST 102	04,6427	3 0573 0	XCH	EXECTEM2	TASK ADDRESS.
0047	REF 2 LAST 16	04,6430	2 0577 0	INDEX	NVAL	
0048		04,6431	0 6432 1	TC	+1	
0049	REF 1	04,6432	3 0561 0	XCH	LST2	
0050	REF 2 LAST 112	04,6433	3 0562 0	XCH	LST2 +1	
0051	REF 3 LAST 112	04,6434	3 0563 1	XCH	LST2 +2	
0052	REF 4 LAST 112	04,6435	3 0564 0	XCH	LST2 +3	
0053	REF 5 LAST 112	04,6436	3 0565 1	XCH	LST2 +4	
0054	REF 6 LAST 112	04,6437	3 0566 1	XCH	LST2 +5	AT END, CHECK THAT C(LST2+5) IS STD
00543	REF 7 LAST 112	04,6440	3 0567 0	XCH	LST2 +6	
00546	REF 8 LAST 112	04,6441	3 0570 0	XCH	LST2 +7	
0055	REF 1	04,6442	6 2260 1	AD	ENDTASK	END ITEM, AS CHECK FOR EXCEEDING THE LENGTH OF THE LIST.
A0056						
0057	REF 78 LAST 112	04,6443	1 0000 0	CCS	A	
0058	REF 5 LAST 99	04,6444	0 3044 1	TC	ABORT	WAITLIST OVERFLOW.
0059		04,6445	01203 1	OCT	01203	
0060		04,6446	0 6444 0	TC	-2	
0061	REF 5 LAST 101	04,6447	3 0572 1	XCH	EXECTEM1	RETURN TO CALLER.
0062	REF 1	04,6450	0 2076 1	TC	LVWTLIST	SAME ROUTINE AS FINDVAC, ETC., EXIT.

L	WAITLIST										USER'S OWN PAGE NO.	3
0063	REF	79	LAST	112	04,6451	1	0000	0	WTLST5	CCS	A	TEST TD - T2 + 1
0064	REF	9	LAST	112	04,6452	6	0553	1		AD	LST1 +1	
0065					04,6453	0	6457	1		TC	+4	
0066	REF	30	LAST	105	04,6454	6	4516	1		AD	ONE	
0067	REF	1			04,6455	0	6535	1		TC	WTLST2	
0068					04,6456		00001	0		OCT	1	
0069	REF	80	LAST	113	04,6457	1	0000	0	+4	CCS	A	TEST TD - T3 + 1
0070	REF	10	LAST	113	04,6460	6	0554	0		AD	LST1 +2	
0071					04,6461	0	6465	0		TC	+4	
0072	REF	31	LAST	113	04,6462	6	4516	1		AD	ONE	
0073	REF	2	LAST	113	04,6463	0	6535	1		TC	WTLST2	
0074					04,6464		00002	0		OCT	2	
0075	REF	81	LAST	113	04,6465	1	0000	0	+4	CCS	A	TEST TD - T4 + 1
0076	REF	11	LAST	113	04,6466	6	0555	1		AD	LST1 +3	
0077					04,6467	0	6473	1		TC	+4	
0078	REF	32	LAST	113	04,6470	6	4516	1		AD	ONE	
0079	REF	3	LAST	113	04,6471	0	6535	1		TC	WTLST2	
0080					04,6472		00003	1		OCT	3	
0081	REF	82	LAST	113	04,6473	1	0000	0	+4	CCS	A	TEST TD - T5 + 1
0082	REF	12	LAST	113	04,6474	6	0556	1		AD	LST1 +4	
0083					04,6475	0	6501	0		TC	+4	
0084	REF	33	LAST	113	04,6476	6	4516	1		AD	ONE	
0085	REF	4	LAST	113	04,6477	0	6535	1		TC	WTLST2	
0086					04,6500		00004	0		OCT	4	
0087	REF	83	LAST	113	04,6501	1	0000	0	+4	CCS	A	TEST TD - T6 + 1
008705	REF	13	LAST	113	04,6502	6	0557	0		AD	LST1 +5	
00871					04,6503	0	6507	0		TC	+4	
008715	REF	34	LAST	113	04,6504	6	4516	1		AD	ONE	
00872	REF	5	LAST	113	04,6505	0	6535	1		TC	WTLST2	
008725					04,6506		00005	1		OCT	5	

L WAITLIST

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00873	REF	84	LAST	113	04,6507	1	0000	0	+4	CCS	A
008735	REF	14	LAST	113	04,6510	6	0560	1		AD	LST1 +6
00874					04,6511	0	6515	0		TC	+4
008745	REF	35	LAST	113	04,6512	6	4516	1		AD	ONE
00875	REF	6	LAST	113	04,6513	0	6535	1		TC	WTLST2
008755					04,6514	00006	1			OCT	6

00876	REF	85	LAST	114	04,6515	1	0000	0	+4	CCS	A
0088	REF	1			04,6516	0	6523	0		TC	WTALARM
0089					04,6517	3	0000	1		NOOP	
0090	REF	36	LAST	114	04,6520	6	4516	1		AD	ONE
0091	REF	7	LAST	114	04,6521	0	6535	1		TC	WTLST2
0092					04,6522	00007	0			OCT	7

0093	REF	6	LAST	112	04,6523	0	3044	1	WTALARM	TC	ABORT
0094					04,6524	01204	0			OCT	01204

0095	REF	3	LAST	103		2076	LVWTLIST	EQUALS	FOUNOVAC		
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0096	REF	1			04,6525	1	0647	0	SVCT3X	CCS	FLAGWRD2	IF DURING FREE-FALL AND AFTER PLATFORM HAS BEEN ALIGNED, COMPENSATE FOR GYRO BIAS DRIFT.
0097	REF	1			04,6526	0	2256	1	TC	TASKOVER		
0098	REF	2	LAST	114	04,6527	0	2256	1	TC	TASKOVER		
0099					04,6530	0	6531	0	TC	+1		

0100	REF	1			04,6531	3	2170	0		CAF	PRI035
0101	REF	1			04,6532	0	2052	1		TC	NOVAC
0102	REF	1			04,6533	31261	0			CADR	BIASONLY
0103	REF	3	LAST	114	04,6534	0	2256	1	LTSKOV	TC	TASKOVER

USED BY LONGCALL.

R0104 C(TIME3) = 1.0 - (T1 - T)

R0105 C(LST1) = - (T2 - T1) + 1

R0106 C(LST1+1) = - (T3 - T2) + 1

R0107 C(LST1+2) = - (T4 - T3) + 1

R0108 C(LST1+3) = - (T5 - T4) + 1

R0109 C(LST1+4) = - (T6 - T5) + 1

R0110 C(LST2) = TC TASK1

R0111 C(LST2+1) = TC TASK2

R0112 C(LST2+2) = TC TASK3

R0113 C(LST2+3) = TC TASK4

R0114 C(LST2+4) = TC TASK5

R0115 C(LST2+5) = TC TASK6

11 W

L WAITLIST

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R0117 THE ENTRY TO WTLST2 JUST PRECEDING OCT N IS FOR T LE TD LE T -1.
 R0118 N N+1

R0119 (LE MEANS LESS THAN OR EQUAL TO). AT ENTRY, $C(A) = -(TD - T_{N+1} + 1)$
 R0120 N+1

R0121 THE LST1 ENTRY $-(T_{N+1} - T_N + 1)$ IS TO BE REPLACED BY $-(TD - T_N + 1)$, AND
 R0122 N N

R0123 THE ENTRY $-(T_{N+1} - TD + 1)$ IS TO BE INSERTED IMMEDIATELY FOLLOWING.
 R0124 N+1

0125	REF	76	LAST	111	04,6535	3	0001	0	WTLST2	XCH	Q	NEW $C(Q) = -(TD - T_{N+1} + 1)$
0126	REF	86	LAST	114	04,6536	2	0000	0		INDEX	A	N+1
0127					04,6537	3	0000	1		CAF	0	
0128	REF	3	LAST	112	04,6540	5	0577	1		TS	NVAL	VALUE OF N INTO NVAL
0129	REF	37	LAST	114	04,6541	3	4516	1		CAF	ONE	
0130	REF	77	LAST	115	04,6542	6	0001	0		AD	Q	
0131	REF	4	LAST	115	04,6543	2	0577	0		INDEX	NVAL	$C(A) = -(TD - T_N) + 1.$
0132	REF	15	LAST	114	04,6544	6	0551	0		AD	LST1 -1	N
0133	REF	5	LAST	115	04,6545	2	0577	0		INDEX	NVAL	
0134	REF	16	LAST	115	04,6546	5	0551	0		TS	LST1 -1	
0135	REF	78	LAST	115	04,6547	4	0001	1		CS	Q	$-C(Q) = -(T_{N+1} - TD) + 1$
0136	REF	6	LAST	115	04,6550	2	0577	0		INDEX	NVAL	N+1
0137	REF	1			04,6551	0	6420	1		TC	WTLST4	

L WAITLIST

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P0138 THIS ROUTINE HANDLES TASKS MORE THAN 120 SECS IN THE FUTURE. IT REQUIRES CALL TIME IN LONGTIME, +1 SCALED SAME
 R0140 AS TIME2, 1 AND THE TASK ADDRESS IN CALLCADR. ENTER WITH

R0141 TC IBNKCALL
 R0142 CADR LONGCALL

R0143 THE ROUTINE ONLY HANDLES ONE CALL AT A TIME

0144	REF	79	LAST	115	04,6552	3	0001	0	LONGCALL	XCH	Q	
0145	REF	1			04,6553	5	1466	1		TS	LONGEXIT	
0146	REF	1			04,6554	3	1461	0		XCH	LONGTIME +1	
0147					04,6555	6	0000	1		DOUBLE		
0148	REF	2	LAST	116	04,6556	5	1461	0		TS	LONGTIME +1	
0149	REF	43	LAST	112	04,6557	3	5501	0		CAF	ZERO	
0150	REF	3	LAST	116	04,6560	6	1460	1		AD	LONGTIME	
0151	REF	4	LAST	116	04,6561	6	1460	1		AD	LONGTIME	
0152	REF	5	LAST	116	04,6562	5	1460	1		TS	LONGTIME	
0153					04,6563	0	6565	1		TC	+2	
0154					04,6564	0	6564	0		TC		ERROR TRAP. DT TOO BIG
0155	REF	38	LAST	115	04,6565	3	4516	1		CAF	ONE	
0156	REF	6	LAST	116	04,6566	6	1461	0		AD	LONGTIME +1	
0157	REF	8	LAST	97	04,6567	6	4476	0		AD	POSMAX	
0158	REF	7	LAST	116	04,6570	5	1461	0		TS	LONGTIME +1	
0159	REF	44	LAST	116	04,6571	3	5501	0		CAF	ZERO	
0160	REF	8	LAST	116	04,6572	6	1460	1		AD	LONGTIME	
0161	REF	9	LAST	116	04,6573	6	4476	0		AD	POSMAX	
0162	REF	9	LAST	116	04,6574	5	1460	1		TS	LONGTIME	
0163	REF	12	LAST	107	04,6575	0	3062	0		TC	CCSHOLE	
0164	REF	3	LAST	110	04,6576	3	4501	1		CAF	BIT14	
0165					04,6577	2	5777	1		EXTEND		
0166	REF	10	LAST	116	04,6600	4	1461	1		MP	LONGTIME +1	
0167	REF	11	LAST	116	04,6601	5	1461	0		TS	LONGTIME +1	
0168	REF	12	LAST	116	04,6602	1	1460	0	LONGCYCL	CCS	LONGTIME	
0169	REF	1			04,6603	0	6613	0		TC	LOOPAGIN	
0170	REF	13	LAST	116	04,6604	1	1461	1		CCS	LONGTIME +1	TEST FOR LOWER ORDER ZERO
0171					04,6605	0	6607	0		TC	+2	
0172	REF	1			04,6606	0	6622	1		TC	GETCADR	
0173	REF	14	LAST	116	04,6607	3	1461	0		XCH	LONGTIME +1	
0174	REF	1			04,6610	0	2173	0		TC	WAITLIST	
0175	REF	2	LAST	116	04,6611		10622	0		CADR	GETCADR	
0176	REF	1			04,6612	0	6617	1		TC	LONGC1	
0177	REF	15	LAST	116	04,6613	5	1460	1	LOOPAGIN	TS	LONGTIME	

L WAITLIST USER'S OWN PAGE NO. 7

0178	REF	4	LAST 116	04,6614	3 4501 1		CAF	BIT14
0179	REF	2	LAST 116	04,6615	0 2173 0		TC	WAITLIST
0180	REF	1		04,6616	10602 1		CADR	LONGCYCL
0181	REF	1		04,6617	3 6534 0	LONGC1	CAF	LTSKOV
0182	REF	2	LAST 116	04,6620	3 1466 1		XCH	LONGEXIT
0183				04,6621	0 0000 1		XAQ	
0184	REF	1		04,6622	3 1467 0	GETCADR	XCH	CALLCADR
0185	REF	1		04,6623	0 5723 1		TC	BANKJUMP

L WAITLIST

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P0187 ENTERS HERE ON T3 RUPT TO DISPATCH WAITLISTED TASK.

0188	REF	3 LAST 117	2177	SETLOC WAITLIST +4	BACK TO FF.
0189	REF	28 LAST 109	2177 3 0015 0 T3RUPT	XCH BANKREG	TIME 3 OVERFLOW INTERRUPT PROGRAM
0190	REF	1	2200 5 0030 1	TS BANKRUPT	
0191	REF	16 LAST 97	2201 3 0034 0	XCH OVCTR	1. PICK UP CONTENTS OF THE OVERFLOW
0192	REF	1	2202 5 0031 0	TS OVRUPT	AND SAVE IN OVRUPT FOR ENTIRE T3RUPT.
0193	REF	45 LAST 116	2203 4 5501 1 T3RUPT2	CS ZERO	SET RUPTAGN TO -0 INITIALLY, AND SET
0194	REF	2 LAST 16	2204 5 0571 1	TS RUPTAGN	T3 TO -0 WHILE WE MAKE UP ITS NEW
0195	REF	3 LAST 112	2205 3 0037 0	XCH TIME3	CONTENTS SO WE CAN DETECT AN INCREMENT
0196	REF	80 LAST 116	2206 5 0001 0	TS Q	OCCURING IN THE PROCESS.
0197	REF	3 LAST 82	2207 3 4520 1	CAF NEG1/2	
01973	REF	17 LAST 115	2210 3 0560 1	XCH LST1 +6	
01976	REF	18 LAST 118	2211 3 0557 0	XCH LST1 +5	
0198	REF	19 LAST 118	2212 3 0556 1	XCH LST1 +4	3. MOVE UP LST1 CONTENTS, ENTERING
0199	REF	20 LAST 118	2213 3 0555 1	XCH LST1 +3	A VALUE OF 1/2 +1 AT THE BOTTOM
0200	REF	21 LAST 118	2214 3 0554 0	XCH LST1 +2	FOR T6-T5, CORRESPONDING TO THE
0201	REF	22 LAST 118	2215 3 0553 1	XCH LST1 +1	INTERVAL 81.93 SEC FOR ENDTASK.
0202	REF	23 LAST 118	2216 3 0552 0	XCH LST1	
0203	REF	10 LAST 116	2217 6 4476 0	AD POSMAX	4. SET T3 = 1.0 - T2 -T USING LIST 1.
0204	REF	81 LAST 118	2220 6 0001 0	AD Q	SAMPLED T3.
0205	REF	87 LAST 115	2221 5 0000 1	TS A	SEE IF NEW T3 HAS OVERFLOW. IF SO, NEXT
0206			2222 0 2226 0	TC +4	TASK IS DUE THIS T3 RUPT AND SET RUPTAGN
0207	REF	3 LAST 118	2223 3 0571 1	XCH RUPTAGN	ACCORDINGLY.
0208	REF	39 LAST 116	2224 3 4516 1	CAF ONE	
0209	REF	4 LAST 118	2225 3 0571 1	XCH RUPTAGN	
0210	REF	4 LAST 118	2226 3 0037 0 +4	XCH TIME3	
0211	REF	88 LAST 118	2227 1 0000 0	CCS A	T3 IS ALMOST ALWAYS -0 UNLESS AN
0212	REF	40 LAST 118	2230 3 4516 1	CAF ONE	INCREMENT OCCURRED IN WHICH CASE WE MUST
0213	REF	5 LAST 118	2231 6 0037 0	AD TIME3	ADD IT TO THE NEW T3.
0214	REF	1	2232 0 2272 1	TC XTRAINC	

L WAITLIST

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0215	REF	2	LAST	112	2233	4	2260	0	T3DSP	CS	ENDTASK
02153	REF	9	LAST	112	2234	3	0570	0		XCH	LST2 +7
02156	REF	10	LAST	119	2235	3	0567	0		XCH	LST2 +6
0216	REF	11	LAST	119	2236	3	0566	1		XCH	LST2 +5
0217	REF	12	LAST	119	2237	3	0565	1		XCH	LST2 +4
0218	REF	13	LAST	119	2240	3	0564	0		XCH	LST2 +3
0219	REF	14	LAST	119	2241	3	0563	1		XCH	LST2 +2
0220	REF	15	LAST	119	2242	3	0562	0		XCH	LST2 +1
0221	REF	16	LAST	119	2243	3	0561	0		XCH	LST2
0222	REF	29	LAST	118	2244	5	0015	0		TS	BANKREG
0223	REF	1			2245	5	0577	1		TS	ITEMP1
0224	REF	1			2246	7	2667	0		MASK	70K
0225	REF	89	LAST	118	2247	1	0000	0		CCS	A
0226					2250	0	2252	0		TC	+2
0227	REF	2	LAST	119	2251	0	0577	1		TC	ITEMP1
0228	REF	3	LAST	119	2252	3	0577	1		XCH	ITEMP1
0229	REF	9	LAST	109	2253	7	4606	1		MASK	LOW10
0230	REF	90	LAST	119	2254	2	0000	0		INDEX	A
0231					2255	0	6000	1		TC	6000

ENTERING THE ENDTASK AT BOTTOM.

9. PICK UP TOP TASK ON LIST

SWITCH BANKS IF NECESSARY

IF +

R0232 RETURN, AFTER EXECUTION OF TIME3 OVERFLOW TASK.

0233	REF	5	LAST	118	2256	1	0571	0	TASKOVER	CCS	RUPTAGN	IF +1 RETURN TO T3RUPT, IF -0 RESUME.
0234	REF	1			2257	0	2203	1		TC	T3RUPT2	DISPATCH NEXT TASK IF IT WAS DUE.
0235	REF	1			2260	6	7774	1	ENDTASK	-CADR	SVCT3	
0236					2261	7	6000	0	BANKMASK	OCT	76000	
0237	REF	2	LAST	118	2262	3	0031	0	OVRESUME	XCH	OVRUPT	OVCTR RESTORE AND BANKREG RESTORE.
0238	REF	17	LAST	118	2263	5	0034	0		TS	OVCTR	
0239	REF	2	LAST	118	2264	3	0030	1	RESUME	XCH	BANKRUPT	STANDARD BANK-SWITCH RESUME.
0240	REF	30	LAST	119	2265	5	0015	0		TS	BANKREG	
0241	REF	7	LAST	35	2266	3	0027	1	NBRESUME	XCH	QRUPT	NO-BANK-SWITCH RESUME.
0242	REF	82	LAST	118	2267	5	0001	0		TS	Q	
0243	REF	7	LAST	35	2270	3	0026	0		XCH	ARUPT	
0244					2271	2	0025	1		RESUME		

R0245 FINISH UP RARE EVENT OF EXTRA INCREMENT TO T3.

0246	REF	6	LAST	118	2272	5	0037	0	XTRAINC	TS	TIME3	USUAL CASE.
0247	REF	1			2273	0	2233	1		TC	T3DSP	EVEN MORE RARE - THE NEXT TASK IS DUE
0248	REF	6	LAST	119	2274	5	0571	1		TS	RUPTAGN	THIS T3RUPT.
0249	REF	2	LAST	119	2275	0	2233	1		TC	T3DSP	

L RESTART CONTROL

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0001 2276 BANK 1
R0002 OF THE PHASE TABLE IN ALMOST CONSTANT AGREEMENT. CALLING SEQUENCES ARE AS FOLLOWS:

A0004	TC	PHASCHNG	CHANGE GROUP G TO PHASE PPP (127 MAX).
A0005	OCT	PPPOG	(CALL UNDER EXECUTIVE ONLY)
A0006	CAF	--	CHANGE GROUP G TO THE PHASE ARRIVING IN
A0007	TC	NEWPHASE	A (MAY BE CALLED ANYTIME).
A0008	OCT	0000G	

R0009 IN EACH CASE THE OLD PHASE IS RETURNED TO THE CALLER IN A. IF THE OLD PHASE WAS +0, CONTROL IS
R0011 GIVEN TO A ROUTINE SPECIFIED IN A CADR TABLE. THIS ROUTINE MAY EXIT OR RETURN TO CALLER VIA SWRETURN.

0013	REF	83 LAST 119	2276	3	0001	0	PHASCHNG	XCH	Q	
0014			2277	2	0017	0		INHINT		
0015	REF	1	2300	5	0642	1		TS	RUPTREG4	
0016	REF	91 LAST 119	2301	2	0000	0		INDEX	A	
0017			2302	3	0000	1		CAF	0	
0018	REF	1	2303	5	0601	0		TS	PHASDATA	
0019	REF	1	2304	7	3220	0		MASK	LOW5	(MAY WANT MORE GROUPS SOME DAY)
0020	REF	2 LAST 120	2305	3	0601	0		XCH	PHASDATA	
0021			2306	2	5777	1		EXTEND		
0022	REF	1	2307	4	2311	1		MP	-BIT9	NOTE LP NOT SAVED.
0023	REF	1	2310	0	2321	0		TC	PHASCH2	

0024			2311	77377	1	-BIT9	OCT	-400	
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0025			2312	2	0017	0	NEWPHASE	INHINT	
0026	REF	84 LAST 120	2313	3	0001	0		XCH	Q
0027	REF	2 LAST 120	2314	5	0642	1		TS	RUPTREG4
0028	REF	92 LAST 120	2315	2	0000	0		INDEX	A
0029			2316	3	0000	1		CAF	0
0030	REF	3 LAST 120	2317	5	0601	0		TS	PHASDATA

0031	REF	85 LAST 120	2320	4	0001	1		CS	Q	
0032	REF	4 LAST 120	2321	2	0601	1	PHASCH2	INDEX	PHASDATA	
0033	REF	1	2322	5	0655	1		TS	-PHASE1 - 1	PHASE1 IS FOR PROG NUM 1.
0034			2323	4	0000	0		COM		
0035	REF	5 LAST 120	2324	2	0601	1		INDEX	PHASDATA	
0036	REF	1	2325	3	0647	1		XCH	PHASE1 - 1	INTO PHASE1 FOR PROG 1.

0037	REF	93 LAST 120	2326	1	0000	0		CCS	A	
0038			2327	0	2332	1		TC	+3	

0039	REF	1	2330	0	2341	0		TC	UPT	ON +0.
------	-----	---	------	---	------	---	--	----	-----	--------

0040	REF	14 LAST 99	2331	4	5503	0		CS	TWO	-1 IS INACTIVE STATE
0041	REF	41 LAST 118	2332	6	4516	1	+3	AD	ONE	

0042	REF	3 LAST 120	2333	3	0642	1	PHASEXIT	XCH	RUPTREG4	
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L RESTART CONTROL

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0043	REF	42	LAST	120	2334	6	4516	1	AD	ONE	
0044	REF	86	LAST	120	2335	5	0001	0	TS	Q	WE MUST RELINT BEFORE RETURN.
0045	REF	4	LAST	120	2336	3	0642	1	XCH	RUPTREG4	OLD PHASE BITS.
0046					2337	2	0016	1	RELINT		
0047	REF	87	LAST	121	2340	0	0001	0	TC	Q	
0048	REF	6	LAST	120	2341	2	0601	1	UPT	INDEX	PHASDATA
0049	REF	1			2342	3	6651	0	CAF	UPTCADR	-1
0050	REF	2	LAST	73	2343	0	5662	0	TC	SWCALL	
0051	REF	46	LAST	118	2344	3	5501	0	CAF	ZERO	IF RETURN
0052	REF	1			2345	0	2333	0	TC	PHASEXIT	

L RESTART CONTROL

USER'S OWN PAGE NO. 3

P0053 MAJOR MODE LIGHT MAINTENANCE ROUTINES.

R0054 ROUTINE TO CHECK EQUALITY BETWEEN THE MAJOR MODE DISPLAY AND THE ARGUMENT AT CALLER +1. RETURNS TO
 R0056 CALLER +2 IF NOT AND CALLER +3 IF SO.

0057	REF	43	LAST	121	2346	3	4516	1	CHECKMM	CAF	ONE
0058	REF	88	LAST	121	2347	6	0001	0		AD	Q
0059	REF	89	LAST	122	2350	3	0001	0		XCH	Q
0060	REF	94	LAST	120	2351	2	0000	0		INDEX	A
0061					2352	4	0000	0		CS	0
0062	REF	1			2353	6	0612	1		AD	MODREG
0063	REF	95	LAST	122	2354	1	0000	0		CCS	A
0064	REF	90	LAST	122	2355	0	0001	0		TC	Q
0065					2356		00017	1	FINEMASK	OCT	17
0066	REF	91	LAST	122	2357	0	0001	0		TC	Q
0067	REF	92	LAST	122	2360	2	0001	1		INDEX	Q
0068	REF	93	LAST	122	2361	0	0001	0		TC	Q

R0069 TO UPDATE THE MAJOR MODE LIGHTS:

0070	REF	94	LAST	122	2362	2	0001	1	NEWMODE	INDEX	Q	
0071					2363	3	0000	1		CAF	0	
0072	REF	2	LAST	122	2364	5	0612	1		TS	MODREG	
0073	REF	1			2365	3	3314	1		CAF	GRABUSY +1	CADR OF BANK CONTAINING DSPMM.
0074	REF	31	LAST	119	2366	3	0015	0		XCH	BANKREG	
0075	REF	155	LAST	105	2367	5	0116	1		TS	MPAC +1	MPACS NOT USED BY DSPMM.
0076	REF	95	LAST	122	2370	3	0001	0		XCH	Q	
0077	REF	156	LAST	122	2371	5	0115	1		TS	MPAC	
0078	REF	1			2372	0	6003	1		TC	DSPMM	
0079	REF	157	LAST	122	2373	3	0116	1		XCH	MPAC +1	
0080	REF	32	LAST	122	2374	5	0015	0		TS	BANKREG	
0081	REF	158	LAST	122	2375	2	0115	0		INDEX	MPAC	
0082					2376	0	0001	0		TC	1	

L RESTART CONTROL

USER'S OWN PAGE NO. 4

P0084 PROGRAM PRGSTALL IS AN EXECUTIVE INTERLOCK ROUTINE. REQUESTING PROGS DO
 R0085 TC BANKCALL
 R0086 CADR PRGSTALL
 R0087 RETURN IS TO L+2 AFTER TWO PROGS HAVE CALLED.

0088				04,6624			BANK	4
0089				04,6624	2 0017 0	PRGSTALL	INHINT	
0090	REF	10	LAST	78	04,6625	4 0645 1	CS	STATE
0091	REF	1			04,6626	7 4516 0	MASK	PRGBIT
0092	REF	96	LAST	122	04,6627	5 0001 0	TS	Q
0093	REF	2	LAST	123	04,6630	4 4516 0	CS	PRGBIT
0094	REF	11	LAST	123	04,6631	7 0645 1	MASK	STATE
0095	REF	97	LAST	123	04,6632	6 0001 0	AD	Q
0096	REF	12	LAST	123	04,6633	5 0645 0	TS	STATE
0097	REF	98	LAST	123	04,6634	1 0001 1	CCS	Q
0098	REF	1			04,6635	0 6642 1	TC	PRGSLEEP
0099	REF	1			04,6636	3 6651 0	CAF	LPRGRET
0100	REF	1			04,6637	0 2060 0	TC	JOBWAKE
0101					04,6640	2 0016 1	RELINT	
0102	REF	1			04,6641	0 5702 1	TC	SWRETURN
0103	REF	1			04,6642	0 5706 0	PRGSLEEP	TC MAKECADR
0104	REF	81	LAST	105	04,6643	3 0062 0	XCH	ADDRWD
0105	REF	159	LAST	122	04,6644	5 0117 0	TS	MPAC +2
0106	REF	2	LAST	123	04,6645	3 6651 0	CAF	LPRGRET
0107	REF	2	LAST	109	04,6646	0 2127 1	TC	JOBSLEEP
0108	REF	160	LAST	123	04,6647	3 0117 0	PRGRET	XCH MPAC +2
0109	REF	2	LAST	117	04,6650	0 5723 1	TC	BANKJUMP
0110	REF	1			04,6651	10647 0	LPRGRET	CADR PRGRET
0111	REF	2	LAST	48		4516	PRGBIT	EQUALS BIT1
0112					04,6652	10652 1	UPTCADR	CADR

L RESTART CONTROL

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P0113 PINBALL COMES TO MODROUT ON RECEIVING THE NEW MODE REQUESTED BY VERB 37. THE DESIRED MODE IN IS A
 R0115 ON ARRIVAL.

0116				04,6653	2 0017 0	MODROUT	INHINT	
0117	REF	2 LAST 104		04,6654	6 4341 0		AD	NEG3 FOR FLIGHT 501, ONLY MODES 01 AND 03 MAY
0118	REF	96 LAST 122		04,6655	1 0000 0		CCS	A BE INITIATED BY VERB 37.
0119	REF	1		04,6656	0 6703 0		TC	V37BAD
0120	REF	13 LAST 116		04,6657	0 3062 0		TC	CCSHOLE
0121	REF	1		04,6660	0 6670 0		TC	1CHECK SEE IF 01 CALLED FOR.
0122	REF	1		04,6661	0 2346 1		TC	CHECKMM MODE 03 REQUESTED - DEMANDS MODE 02
0123				04,6662	00002 0		OCT	02 PRESENTLY.
0124	REF	2 LAST 124		04,6663	0 6703 0		TC	V37BAD
0125	REF	1		04,6664	3 2150 1		CAF	PRI014 START OPTICAL CHECK.
0126	REF	1		04,6665	0 2046 1		TC	FINDVAC
0127	REF	1		04,6666	43262 0		CADR	CHKOPT
0128	REF	1		04,6667	0 2124 1		TC	ENDOFJOB
0129	REF	3 LAST 48		04,6670	6 4335 0	1CHECK	AD	MINUS1 SEE IF 01 REQUESTED.
0130	REF	97 LAST 124		04,6671	1 0000 0		CCS	A
0131	REF	3 LAST 124		04,6672	0 6703 0		TC	V37BAD
0132	REF	14 LAST 124		04,6673	0 3062 0		TC	CCSHOLE
0133	REF	4 LAST 124		04,6674	0 6703 0		TC	V37BAD
0134	REF	3 LAST 122		04,6675	1 0612 0		CCS	MODREG DEMAND IDLE MODE.
0135	REF	5 LAST 124		04,6676	0 6703 0		TC	V37BAD
0136	REF	1		04,6677	3 4501 1		CAF	PRI020
0137	REF	2 LAST 124		04,6700	0 2046 1		TC	FINDVAC
0138	REF	1		04,6701	42000 1		CADR	TOP1
0139	REF	2 LAST 124		04,6702	0 2124 1		TC	ENDOFJOB
0140	REF	1		04,6703	0 3233 0	V37BAD	TC	FALTON ILLEGAL REQUEST.
0141	REF	3 LAST 124		04,6704	0 2124 1		TC	ENDOFJOB

L 501 RESTART TABLES AND ROUTINES
 R0001 RESTART TABLES
 R0002 -----

USER'S OWN PAGE NO. 1

R0003 THESE CONTROL RESTART OPERATION.
 R0004

R0005 ...IMPORTANT... DO NOT MOVE THIS SECTION FROM BEGINNING OF BANK. DJL

0006		13,6000		SETLDC	26000	START OF BANK 13.
0007		13,6000	00000 1	WDTTAB	DEC 0	WAITLIST DT FOR RESTART 1.0
0008		13,6001	00000 1	WCADRTAB	CADR 0	WAITLIST CADR.
0009		13,6002	00000 1	PRIOTAB	OCT 0	PRIORITY VALUE.
0010		13,6003	00000 1	CADRTAB	CADR 0	CADR OF CURRENT JOB

R0011 ANY JOB 1 RESTARTS SHOULD GO HEFE.

0012		13,6004	00000 1	2.1SPOT	2DEC 0.0	2.1 RESTART
C0012		13,6005	00000 1			
0015		13,6006	00000 1		2DEC 0.0	
C0015		13,6007	00000 1			RESTART 2.2 VALUES.
0016		13,6010	00000 1	2.2SPOT	OCT 0	
0017		13,6011	00000 1		OCT 0	
0018		13,6012	12000 1		OCT 12000	PRIO12
0019	REF 1	13,6013	66621 1		CADR SOAKINIT	

0020		13,6014	00000 1	2.3SPOT	OCT 0	2.3 RESTART
0021		13,6015	00000 1		OCT 0	
0022		13,6016	12000 1		OCT 12000	ATTIJOB1 - 1
0023	REF 1	13,6017	66412 0		CADR	

0024		13,6020	00000 1	2.4SPOT	OCT 0	RESTART 2.4
0025		13,6021	00000 1		OCT 0	
0026		13,6022	12000 1		OCT 12000	ATTIJOB
0027	REF 1	13,6023	66404 1		CADR	

00271		13,6024	00000 1	2.5SPOT	2DEC 0	2.5 RESTART.
C00271		13,6025	00000 1			
002715		13,6026	00000 1		2DEC 0	
C002715		13,6027	00000 1			

R0028 ANY MORE GROUP 2 RESTART VALUES SHOULD GO HERE.

R0029						3.1 RESTART.
0030		13,6030	77777 0	3.1SPOT	OCT 77777	
0031		13,6031	77777 0		OCT 77777	CONTAINS DT
0032	REF 1	13,6032	01563 0		CADR TROLL +1	
0033	REF 1	13,6033	64066 0		CADR MONITASK	

0034		13,6034	77777 0	3.2SPOT	OCT 77777	3.2 RESTART
0035		13,6035	77777 0		OCT 77777	
0036	REF 1	13,6036	01572 0		CADR TTUMON	

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L 501 RESTART TABLES AND ROUTINES

USER'S OWN PAGE NO. 2

0037	REF	1	13,6037	64250 1	CADR	TUMBTSK1	
0038			13,6040	00000 1	OCT	0	3.3 RESTART
0039			13,6041	00000 1	OCT	0	
0040			13,6042	77777 0	OCT	77777	
0041	REF	1	13,6043	64771 1	CADR	RED03.3	
0042			13,6044	01274 1	DEC	700	3.4 RESTART.
0043	REF	1	13,6045	65110 1	CADR	GIMPOWOF	
0044			13,6046	00000 1	OCT	0	
0045			13,6047	00000 1	OCT	0	
0046			13,6050	02032 1	DEC	1050	3.5 RESTART
0047	REF	1	13,6051	65124 0	CADR	DVMODOFF	
0048			13,6052	00000 1	OCT	0	
0049			13,6053	00000 1	OCT	0	
0050			13,6054	02063 0	DEC	1075	3.6 RESTART.
0051	REF	1	13,6055	65135 0	CADR	ATTCONON	
0052			13,6056	00000 1	OCT	0	
0053			13,6057	00000 1	OCT	0	
0054			13,6060	00113 1	DEC	75	3.7RESTART
0055	REF	1	13,6061	31550 0	CADR	CGTASK	
0056			13,6062	00000 1	OCT	0	
0057			13,6063	00000 1	OCT	0	
0058			13,6064	00310 0	DEC	200	3.8 RESTART.
0059	REF	1	13,6065	65121 0	CADR	GMPOFF3	
0060			13,6066	00000 1	OCT	0	
0061			13,6067	00000 1	OCT	0	
0062			13,6070	00000 1	OCT	0	3.9 REATART.
0063			13,6071	00000 1	OCT	0	
0064			13,6072	77777 0	OCT	77777	
0065	REF	1	13,6073	65070 0	CADR	SETMOD23	
0066			13,6074	00000 1	OCT	0	3.10 RESTART.
0067			13,6075	00000 1	OCT	0	
0068			13,6076	27000 1	OCT	27000	
0069	REF	1	13,6077	67060 0	CADR	SHUTJOB	
0070			13,6100	00764 1	DEC	500	3.11 RESTART.
0071	REF	1	13,6101	67260 1	CADR	CDUXTASK	5SECS FROM TBASE3
0072			13,6102	00000 1	OCT	0	
0073			13,6103	00000 1	OCT	0	
0074			13,6104	01750 1	DEC	1000	3.12 RESTART.
0075	REF	1	13,6105	67342 0	CADR	CM/SMTSK	10SECS FROM TBASE3
0076			13,6106	20000 0	OCT	20000	

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0077	REF	1	13,6107	67274	1	CADR	CDUXJOB	
0078			13,6110	01750	1	DEC	1000	3.13 RESTART.
0079	REF	2 LAST 126	13,6111	67342	0	CADR	CM/SMTSK	
0080			13,6112	20000	0	OCT	20000	
0081	REF	1	13,6113	67330	0	CADR	RED03.13	
0082			13,6114	01750	1	DEC	1000	3.14 RESTART.
0083	REF	3 LAST 127	13,6115	67342	0	CADR	CM/SMTSK	
0084			13,6116	00000	1	OCT	0	
0085			13,6117	00000	1	OCT	0	
0086			13,6120	02734	0	3.15SPOT DEC	1500	3.15 RESTART
0087	REF	1	13,6121	67355	0	CADR	ENTATASK	15SECS FROM TBASE3
0088			13,6122	00000	1	OCT	0	
0089			13,6123	00000	1	OCT	0	
0090			13,6124	00000	1	3.16SPOT OCT	0	3.16 RESTART.
0091			13,6125	00000	1	OCT	0	
0092			13,6126	15000	0	OCT	15000	PRI0 TO RED0 HUNTEST.
0093	REF	1	13,6127	63515	0	CADR	PREHUNT	
0094			13,6130	00000	1	3.17SPOT 2DEC	0	3.17 RESTART. ...PRELAUNCH...
C0094			13,6131	00000	1			
0095			13,6132	20000	0	OCT	20000	
0096	REF	1	13,6133	42142	0	CADR	REPL11	
0097			13,6134	00000	1	2DEC	0	3.18 RESTART. ...PRELAUNCH...
C0097			13,6135	00000	1			
0098			13,6136	20000	0	OCT	20000	
0099	REF	1	13,6137	42151	1	CADR	REPL12	
0100			13,6140	00000	1	2DEC	0.0	3.19 RESTART ...PRELAUNCH...
C0100			13,6141	00000	1			
0101			13,6142	20000	0	OCT	20000	
0102	REF	1	13,6143	42266	0	CADR	RED03.21	
0103			13,6144	00000	1	2DEC	0	3.20 RESTART. ...PRELAUNCH...
C0103			13,6145	00000	1			
0104			13,6146	77777	0	OCT	77777	
0105	REF	1	13,6147	42216	1	CADR	RED03.20	
0106			13,6150	00062	0	DEC	50	3.21 RESTART. ...PRELAUNCH...
0107	REF	1	13,6151	42262	1	CADR	REPRELAL	
0108			13,6152	21000	1	OCT	21000	
0109	REF	2 LAST 127	13,6153	42266	0	CADR	RED03.21	
01095			13,6154	00062	0	DEC	50	3.22 RESTART. ...PRELAUNCH
0110	REF	2 LAST 127	13,6155	42262	1	CADR	REPRELAL	
0111			13,6156	00000	1	2DEC	0.0	
C0111			13,6157	00000	1			

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01111			13,6160	00310 0	3.23SPOT	DEC	200	3.23 RESTART
01112	REF	1	13,6161	67166 1		CADR	GMPOFF2	
01113			13,6162	00000 1		2DEC	0.0	
C01113			13,6163	00000 1				
01114			13,6164	00536 1	3.24SPOT	DEC	350	3.24 RESTART
01115	REF	1	13,6165	67177 1		CADR	DVMODOF2	
01116			13,6166	00000 1		2DEC	0.0	
C01116			13,6167	00000 1				
01117			13,6170	01046 1		DEC	550	3.25 RESTART
01118	REF	2 LAST 128	13,6171	67177 1		CADR	DVMODOF2	
01119			13,6172	00000 1		2DEC	0.0	
C01119			13,6173	00000 1				
R0112	ANY MORE GROUP 3 RESTART VALUES SHOULD GO HERE.							
01121			13,6174	00000 1		2DEC	0.0	3.26 RESTART
C01121			13,6175	00000 1				
01122			13,6176	05000 1		OCT	05000	
01123	REF	1	13,6177	64074 0		CADR	MONITJOB	
01124			13,6200	00000 1		2DEC	0.0	3.27 RESTART
C01124			13,6201	00000 1				
01125			13,6202	77777 0		OCT	77777	
01126	REF	2 LAST 126	13,6203	64250 1		CADR	TUMBTSK1	
R0113	ANY MORE GROUP 3 RESTARTS GO IN HERE							
0114			13,6204	00000 1	4.1SPOT	OCT	0	4.1 RESTART.
0115			13,6205	00000 1		OCT	0	
0116			13,6206	34000 0		OCT	34000	HIGH PRIO. (WATCH THIS.)
0117	REF	1	13,6207	66202 1		CADR	RED04.1	
0118			13,6210	77777 0	4.2SPOT	OCT	77777	4.2 RESTART.
0119			13,6211	77777 0		OCT	77777	
0120	REF	16 LAST 116	13,6212	01461 0		CADR	LONGTIME + 1	
0121	REF	1	13,6213	64710 0		CADR	ENGINEOFF	
0122			13,6214	02032 1	4.3SPOT	DEC	1050	4.3 RESTART.
0123	REF	1	13,6215	50114 0		CADR	COASTPHS	
0124			13,6216	77777 0		OCT	77777	
0125	REF	1	13,6217	65022 1		CADR	RED04.3	
0126			13,6220	77776 1	4.4SPOT	2DEC	-30000	4.4 RESTART
C0126			13,6221	45317 0				
0127			13,6222	00000 1		2DEC	0	
C0127			13,6223	00000 1				
0128			13,6224	34430 1		DEC	14616	4.5 RESTART (DT = 146.16 SEC
0129	REF	1	13,6225	50154 1		CADR	FDAOFTSK	(310 - 163.84 SEC.)
0130			13,6226	00000 1		2DEC	0	
C0130			13,6227	00000 1				
0131			13,6230	77777 0		OCT	77777	4.6 RESTART
0132	REF	1	13,6231	01556 0		CADR	TCOAST	TCOAST = TIME FORM CUTOFF TO UPTASK.

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0133			13,6232	00000 1	2DEC	0	
C0133			13,6233	00000 1			
0134			13,6234	00000 1	OCT	0	4.7 RESTART
0135			13,6235	00000 1	OCT	0	
0136			13,6236	77777 0	OCT	77777	
0137	REF	1	13,6237	50201 1	CADR	UPTASK	
0138			13,6240	26354 1	DEC	11500	4.8 RESTART
0139	REF	1	13,6241	50335 1	CADR	PREAVGON	
0140			13,6242	06000 1	OCT	06000	
0141	REF	1	13,6243	50225 1	CADR	UPJOB	
0142			13,6244	26354 1	DEC	11500	4.9 RESTART
0143	REF	2 LAST 129	13,6245	50335 1	CADR	PREAVGON	
0144			13,6246	06000 1	OCT	06000	
01445	REF	1	13,6247	50322 1	CADR	RED04.9	
0145			13,6250	01130 1	DEC	600	4.10 RESTART
0146	REF	1	13,6251	64511 0	CADR	GIMPOWON	
0147			13,6252	77777 0	OCT	77777	
0148	REF	1	13,6253	65045 0	CADR	RED04.10	
0149			13,6254	00310 0	DEC	200	4.11 RESTART.
0150	REF	1	13,6255	64025 1	CADR	TARGETASK	
0151			13,6256	00000 1	2DEC	0	
C0151			13,6257	00000 1			
0152			13,6260	00252 1	DEC	170	4.12 RESTART.
0153	REF	1	13,6261	64374 0	CADR	ABRTWAIT	IN 1.7 SEC.
0154			13,6262	25000 0	OCT	25000	
0155	REF	1	13,6263	64363 0	CADR	SETS4SEP	
0156			13,6264	23336 0	DEC	9950	4.13 RESTART
0157	REF	1	13,6265	64527 0	CADR	ATTCTNOFF	IN 95.5 SEC.
0158			13,6266	77777 0	OCT	77777	
01585	REF	1	13,6267	64761 0	CADR	RED04.13	
0159			13,6270	01130 1	4.14 SPOT DEC	600	4.14 RESTART.
0160	REF	2 LAST 129	13,6271	64511 0	CADR	GIMPOWON	
0161			13,6272	77777 0	OCT	77777	
0162	REF	1	13,6273	65062 0	CADR	RED04.14	
0163			13,6274	00372 1	DEC	250	4.15 RESTART.
0164	REF	2 LAST 129	13,6275	64527 0	CADR	ATTCTNOFF	IN 2.5 SEC
0165			13,6276	25000 0	OCT	25000	
0166	REF	1	13,6277	64474 1	CADR	ABORTRPT - 3	WATCH THIS LOC.
0167			13,6300	01046 1	DEC	550	4.16 RESTART
0168	REF	3 LAST 129	13,6301	64527 0	CADR	ATTCTNOFF	
0169			13,6302	25000 0	OCT	25000	
0170	REF	1	13,6303	64440 0	CADR	RED04.16	

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0171			13,6304	25060 0	DEC	10800	4.17 RESTART
0172	REF	3 LAST 129	13,6305	64511 0	CADR	GIMPOWON	
0173			13,6306	00000 1	2DEC	0	
C0173			13,6307	00000 1			
0174			13,6310	00000 1	2DEC	0	4.18 RESTART.
C0174			13,6311	00000 1			
0175			13,6312	77777 0	OCT	77777	
0176	REF	4 LAST 129	13,6313	64527 0	CADR	ATTCTNOFF	
0177			13,6314	00031 0	DEC	25	4.19 RESTART.
0178	REF	1	13,6315	64545 1	CADR	DVMODEON	
0179			13,6316	00000 1	2DEC	0	
C0179			13,6317	00000 1			
0180			13,6320	00062 0	DEC	50	4.20 RESTART.
0181	REF	1	13,6321	64562 1	CADR	ENGINEON	
0182			13,6322	00000 1	2DEC	0	
C0182			13,6323	00000 1			
0183			13,6324	01750 1	4.21SPOT DEC	1000	4.21 RESTART
0184	REF	1	13,6325	64663 0	CADR	PLUSXOFF	
0185			13,6326	25000 0	OCT	25000	
0186	REF	1	13,6327	64423 0	CADR	RED04.21	
0187			13,6330	00000 1	2DEC	0	4.22 RESTART.
C0187			13,6331	00000 1			
0188			13,6332	77777 0	OCT	77777	
0189	REF	1	13,6333	64654 1	CADR	RED04.22	
0190			13,6334	00536 1	DEC	350	4.23 RESTART
0191	REF	2 LAST 128	13,6335	64710 0	CADR	ENGINEOFF	
0192			13,6336	77777 0	OCT	77777	
0193	REF	1	13,6337	64633 0	CADR	STEEROFF	
0194			13,6340	00000 1	2DEC	0	4.24 RESTART.
C0194			13,6341	00000 1			
0195			13,6342	77777 0	OCT	77777	
0196	REF	4 LAST 130	13,6343	64511 0	CADR	GIMPOWON	
0197			13,6344	02176 0	DEC	1150	4.25 RESTART
0198	REF	5 LAST 130	13,6345	64527 0	CADR	ATTCTNOFF	
0199			13,6346	00000 1	2DEC	0	
C0199			13,6347	00000 1			
0200			13,6350	00000 1	4.26SPOT 2DEC	0	4.26 RESTSRT.
C0200			13,6351	00000 1			
0201			13,6352	12000 1	OCT	12000	LOWERED.
0202	REF	1	13,6353	57101 0	CADR	UPTHETA1	
0203			13,6354	27340 0	4.27SPOT DEC	12000	4.27 RESTART
0204	REF	1	13,6355	50357 0	CADR	AVGON	120 SEC FROM UPTASK.
0205			13,6356	00000 1	2DEC	0	
C0205			13,6357	00000 1			

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02051			13,6360	00000 1	4.28SPOT 2DEC	0	4.28 RESTART SAVES ENGIN OFF SEQUENCE
C02051			13,6361	00000 1			
02052			13,6362	77777 0	OCT	77777	WHILE TBASE4 UPDATED
02053	REF	1	13,6363	64774 1	CADR	SPS1TEST	
020532			13,6364	26354 1	4.29SPOT DEC	11500	4.29 RESTART
020534	REF	3 LAST 129	13,6365	50335 1	CADR	PREAVGON	
020536			13,6366	06000 1	OCT	06000	
020538	REF	1	13,6367	50263 0	CADR	RED04.29	
02054			13,6370	21450 0	4.30SPOT DEC	9000	4.30 RESTART
020542	REF	1	13,6371	50463 0	CADR	PLUSX2	
020544			13,6372	00000 1	2DEC	0.0	
C020544			13,6373	00000 1			
020546			13,6374	00000 1	4.31SPOT 2DEC	0.0	4.31 RESTART
C020546			13,6375	00000 1			
020548			13,6376	77777 0	OCT	77777	
02055	REF	1	13,6377	64062 1	CADR	RED04.31	
020552			13,6400	00000 1	4.32SPOT 2DEC	0.0	4.32 RESTART
C020552			13,6401	00000 1			
020553			13,6402	77777 0	OCT	77777	
020554	REF	1	13,6403	64054 1	CADR	RED04.32	
020555			13,6404	00000 1	4.33SPOT 2DEC	0.0	4.33 RESTART
C020555			13,6405	00000 1			
020556			13,6406	77777 0	OCT	77777	
020557	REF	3 LAST 130	13,6407	64710 0	CADR	ENGINEOFF	

R0206 ANY MORE GROUP 4 RESTART VALUES SHOULD GO HERE.

R0207							
0208			13,6410	00310 0	5.1SPOT DEC	200	5.1 RESTART
0209	REF	1	13,6411	65226 1	CADR	REREADAC	
0210			13,6412	00000 1	2DEC	0	
C0210			13,6413	00000 1			
0211			13,6414	00000 1	5.2SPOT 2DEC	0	
C0211			13,6415	00000 1			
0212			13,6416	77777 0	OCT	77777	
0213	REF	1	13,6417	65157 1	CADR	RED05.2	
0214			13,6420	00310 0	DEC	200	5.3 RESTART
0215	REF	2 LAST 131	13,6421	65226 1	CADR	REREADAC	
0216			13,6422	17000 1	OCT	17000	
0217	REF	1	13,6423	65276 1	CADR	RED05.3	
0218			13,6424	00310 0	DEC	200	5.4 RESTART
0219	REF	3 LAST 131	13,6425	65226 1	CADR	REREADAC	
0220			13,6426	17000 1	OCT	17000	
0221	REF	1	13,6427	61620 1	CADR	REFAZE6	

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0222			13,6430	00310 0	DEC	200	5.5 RESTART.	
0223	REF	4 LAST 131	13,6431	65226 1	CADR	REREADAC		
0224			13,6432	17000 1	OCT	17000		
0225	REF	1	13,6433	66014 1	CADR	RED05.5		
0226			13,6434	00310 0	DEC	200	5.6 RESTART	
0227	REF	5 LAST 132	13,6435	65226 1	CADR	REREADAC		
0228			13,6436	35000 1	OCT	35000		
0229	REF	1	13,6437	50477 0	CADR	MODE26		
0230			13,6440	00000 1	5.7SPOT	2DEC	0	5.7 RESTART
C0230			13,6441	00000 1				
0231			13,6442	77777 0	OCT	77777		
0232	REF	1	13,6443	66676 0	CADR	RED05.7		
0233			13,6444	00310 0	DEC	200	5.8 RESTART	
0234	REF	1	13,6445	66666 1	CADR	SOAKTSK1		
0235			13,6446	14000 1	OCT	14000		
0236	REF	1	13,6447	66713 1	CADR	SOAKJOB		
0237			13,6450	00310 0	DEC	200	5.9 RESTART.	
0238	REF	2 LAST 132	13,6451	66666 1	CADR	SOAKTSK1		
0239			13,6452	13000 0	OCT	13000		
0240	REF	2 LAST 131	13,6453	61620 1	CADR	REFAZE6		
0241			13,6454	00000 1	2DEC	0	5.10 RESTART.	
C0241			13,6455	00000 1				
0242			13,6456	12000 1	OCT	12000		
0243	REF	1	13,6457	66734 1	CADR	RED05.10		
0244			13,6460	00310 0	DEC	200	5.11 RESTART	
0245	REF	3 LAST 132	13,6461	66666 1	CADR	SOAKTSK1		
0246			13,6462	00000 1	2DEC	0		
C0246			13,6463	00000 1				
0247			13,6464	00310 0	5.12SPOT	DEC	200	5.12 RESTART.
0248	REF	1	13,6465	56001 0	CADR	REPIUP		
0249			13,6466	00000 1	2DEC	0		
C0249			13,6467	00000 1				
0250			13,6470	00000 1	2DEC	0	5.13 RESTART.	
C0250			13,6471	00000 1				
0251			13,6472	77777 0	OCT	77777		
0252	REF	1	13,6473	56011 1	CADR	RED05.13		
0253			13,6474	00310 0	DEC	200	5.15 RESTART.	
0254	REF	2 LAST 132	13,6475	56001 0	CADR	REPIUP		
0255			13,6476	17000 1	OCT	17000		
0256	REF	1	13,6477	56036 1	CADR	ENTRYTOP + 3		
0257			13,6500	00310 0	DEC	200	5.15 RESTART.	
0258	REF	3 LAST 132	13,6501	56001 0	CADR	REPIUP		

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0259			13,6502	17000 1	OCT	17000	
0260	REF	1	13,6503	56052 0	CADR	REFAZE4	
0261			13,6504	00310 0	DEC	200	5.16
0262	REF	4 LAST 132	13,6505	56001 0	CADR	REPIPUP	
0263			13,6506	16000 0	OCT	16000	
0264	REF	3 LAST 132	13,6507	61620 1	CADR	REFAZE6	
0265			13,6510	00310 0	DEC	200	5.17 RESTART.
0266	REF	5 LAST 133	13,6511	56001 0	CADR	REPIPUP	
0267			13,6512	17000 1	OCT	17000	
0268	REF	1	13,6513	56057 0	CADR	REFAZE8	
0269			13,6514	00310 0	5.18SPOT DEC	200	5.18 RESTART
0270	REF	6 LAST 133	13,6515	56001 0	CADR	REPIPUP	
0271			13,6516	17000 1	OCT	17000	
0272	REF	1	13,6517	56174 0	CADR	REFAZE10	
0273			13,6520	00310 0	5.19SPOT DEC	200	5.19 RESTART. (PIPUP IN 2 SEC.)
0274	REF	7 LAST 133	13,6521	56001 0	CADR	REPIPUP	
0275			13,6522	17000 1	OCT	17000	
0276	REF	1	13,6523	61441 1	CADR	NUMODE63	SETS MODE 63 AND FINISHES ENTRY INITIAL.
02761			13,6524	00000 1	5.20SPOT 2DEC	0.0	5.20 RESTART FOR VERB 76
C02761			13,6525	00000 1			
02762			13,6526	34000 0	OCT	34000	
02763	REF	1	13,6527	13150 1	CADR	RED05.20	
02764			13,6530	00000 1	5.21SPOT DEC	0.	5.21 RESTART IS SPARE
027645			13,6531	26531 1	CADR		
02765			13,6532	00000 1	OCT	0	
02766			13,6533	26533 0	CADR		
02767			13,6534	00000 1	5.22SPOT DEC	0.0	5.22 RESTART IS SPARE
027675			13,6535	26535 0	CADR		
02768			13,6536	00000 1	OCT	0	
02769			13,6537	26537 1	CADR		
027691			13,6540	00310 0	5.23SPOT DEC	200	5.23 RESTART
027692	REF	6 LAST 132	13,6541	65226 1	CADR	REREADAC	
027693			13,6542	17000 1	OCT	17000	
027694	REF	1	13,6543	65551 0	CADR	RED05.23	
0277			13,6544	00310 0	DEC	200	REDO POINT AFTER AVG STATE VECTOR UPDATE
02771	REF	7 LAST 133	13,6545	65226 1	CADR	REREADAC	
02772			13,6546	17000 1	OCT	17000	
02773	REF	1	13,6547	55744 0	CADR	RED05.24	
02774			13,6550	00310 0	DEC	200	
02775	REF	8 LAST 133	13,6551	65226 1	CADR	REREADAC	

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02776				13,6552	17000 1	OCT	17000
02777	REF	4	LAST 133	13,6553	61620 1	CADR	REFAZE6

R02778 ANY MORE GROUP 5 RESTARTS GO HERE.

R0278				13,6554	00000 1	6.1SPOT	DEC	0	6.1 RESTART (UNDEFINED)
0279									

R0280
R0281 ANY MORE GROUP 6 RESTART VALUES SHOULD GO HERE.
R0282

0283				13,6555	00000 1	SIZE TAB	DEC	0	0 INCREMENT FOR GROUP 1.
0284	REF	1		13,6556	0 0000 1		TC	2.1SPOT -26004	INCREMENT TO INDEX GROUP 2 TABLE
0285	REF	1		13,6557	0 0024 1		TC	3.1SPOT -26004	INCREMENT TO INDEX GROUP 3
0286	REF	1		13,6560	0 0200 0		TC	4.1SPOT -26004	INCREMENT TO INDEX GROUP 4 TABLE.
0287	REF	1		13,6561	0 0404 1		TC	5.1SPOT -26004	INCREMENT TO INDEX GROUP 5 TABLE.
0288	REF	1		13,6562	0 0550 1		TC	6.1SPOT -26004	INCREMENT TO INDEX GROUP 6 TABLE.

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P0289 GENERALIZED RESTART ROUTINE.

R0290 FOR EACH FAZE BIT VALUE, THE ASSUMPTION IS MADE THAT THERE MAY EXIST
 R0291 ONE WAITLIST OR LONGCALL TASK TO BE RECALLED. AND ONE CURRENT TASK OR
 R0292 JOB TO BE RESTARTED. (SPECIAL RESTARTS ARE POSSIBLE FOR SITUATIONS
 R0293 WHICH DONOT FIT THE GENERAL FORM.) FOR THE GENERAL CASE, FOUR TABLES
 R0294 ARE USED.

R0295 (RATHER, ONE TABLE WITH 4 ENTRIES PER FAZE BIT VALUE.)

- R0296 1. WDTTAB. WAITLIST DT TABLE.
- R0297 2. WCADRTAB WAITLIST CADR TABLE.
- R0298 3. PRIOTAB CURRENT JOB PRIORITY. (NEG NUMB IF TASK.)
- R0299 4. CADRTAB CURRENT JOB (OR TASK) RESTART LOCATION.

R0300 IN ADDITION, THERE EXISTS A SIZE TABLE THAT LISTS THE NUMBER OF
 R0301 LOCATIONS USED BY EACH PROGRAM FOR RESTARTS.

R0302 ...MORE TO COME LATER... (DJL)

0303	REF 161 LAST 123	13,6563	3 0115 1	RESTARTS	XCH	MPAC	FAZE BITS FOR THIS PROG IN MPAC.
0304		13,6564	6 0000 1		DOUBLE		
0305		13,6565	6 0000 1		DOUBLE		MULTIPLY BY 4. (4 ITEMS PER ENTRY.)
0306	REF 18 LAST 109	13,6566	2 0120 0		INDEX	LOC	LOC CONTAINS THE PROGRAM NUMBER-1. (0-5)
0307	REF 1	13,6567	6 6555 1		AD	SIZE TAB	
0308	REF 1	13,6570	5 0115 1		TS	POINTER	
0309	REF 1	13,6571	3 6607 0		CAF	TCURRENT	
0310	REF 1	13,6572	5 0123 1		TS	GOLOC + 1	EXIT LOCATION.
0311	REF 1	13,6573	3 3224 0		CAF	TCWAIT	SET A WAITLIST CALL IN ERASABLE.
0312	REF 2 LAST 135	13,6574	5 0121 0		TS	GOLOC - 1	
0313	REF 2 LAST 135	13,6575	2 0115 0		INDEX	POINTER	
0314	REF 1	13,6576	3 6000 1		CAF	WDTTAB	
0315	REF 98 LAST 124	13,6577	1 0000 0		CCS	A	
0316	REF 1	13,6600	0 6636 1		TC	WTCALL	+N = WAITLIST CALL
0317	REF 1	13,6601	0 6676 0		TC	CURNTJOB	+0 = NO CALL
0318	REF 1	13,6602	0 6613 0		TC	LONGCLER	-N = LONGCALL
0319	REF 3 LAST 135	13,6603	2 0115 0		INDEX	POINTER	-0 = INDIRECT (PROBABLY)
0320	REF 1	13,6604	3 6001 0		CAF	WCADRTAB	
0321	REF 99 LAST 135	13,6605	1 0000 0		CCS	A	
0322	REF 1	13,6606	0 6625 0		TC	INDIRECT	
0323	REF 2 LAST 135	13,6607	0 6676 0	TCURRENT	TC	CURNTJOB	NO ZERO CALLS
0324	REF 2 LAST 135	13,6610	0 6612 1		TC	LONGCLER - 1	NEG OF TIME FOR SHORT LONG.
0325	REF 1	13,6611	0 6664 0		TC	SINDIR	
0326	REF 44 LAST 122	13,6612	4 4516 0		CS	ONE	
0327	REF 45 LAST 135	13,6613	6 4516 1	LONGCLER	AD	ONE	RESTORE LONGTIME
0328	REF 1	13,6614	5 0116 1		TS	RECALL	
0329	REF 4 LAST 135	13,6615	2 0115 0		INDEX	POINTER	
0330	REF 2 LAST 135	13,6616	4 6001 1		CS	WCADRTAB	STORED NEGATIVELY.

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0331	REF	2 LAST 135	13,6617	5 0117 0	TS	RECALL + 1
0332	REF	1	13,6620	0 5742 0	TC	IBNKCALL
0333	REF	1	13,6621	26724 1	CADR	NULONGDT
0334	REF	2 LAST 136	13,6622	0 5742 0	TC	IBNKCALL
0335	REF	1	13,6623	10552 1	CADR	LONGCALL
0336	REF	3 LAST 135	13,6624	0 6676 0	TC	CURNTJOB

R0337

R0338 INDIRECT SECTION TAKES THE DP TIME FROM THE ERASABLE LOCATIONS BY THE
 R0339 NUMBER IN THE WCADRTAB. (WTDITAB = -0.)

0340	REF	1	13,6625	5 0117 0	INDIRECT TS	ECADTEM	CADR-1 IS STORED. (DUE TO CCS.)
0341	REF	100 LAST 135	13,6626	2 0000 0	INDEX	A	
0342			13,6627	4 0001 1	CS	1	(1 NOT 0 BECAUSE CADR OFF BY 1.)
0343			13,6630	4 0000 0	COM		(NOT NEEDED IF NEG TIME STROED.USAGE..)
0344	REF	3 LAST 136	13,6631	5 0116 1	TS	RECALL	AND STORE MAJOR PART.
0345	REF	2 LAST 136	13,6632	2 0117 1	INDEX	ECADTEM	
0346			13,6633	4 0002 1	CS	2	AGAIN ONE MORE THAN USUAL.
0347			13,6634	4 0000 0	COM		
0348	REF	3 LAST 135	13,6635	0 6617 1	TC	LONGCLER + 4	STORE MINOR PART THERE

R0349 ASSIGNMENTS ETC.

0350	REF	12 LAST 105		0122	GOLOC	EQUALS	OVFIND	USES ONE LOCATION ON EACH SIDE OF IT.
0351	REF	162 LAST 135		0117	TEMDET	EQUALS	MPAC + 2	
0352	REF	163 LAST 136		0116	RECALL	EQUALS	MPAC + 1	MUNTZ NOW USINF LOC IN RESTART CONTROL.
0353	REF	4 LAST 136		0117	ECADTEM	EQUALS	RECALL + 1	LOOKS OK.
0354	REF	164 LAST 136		0115	POINTER	EQUALS	MPAC	
R0355		MPAC + 1 SAVED BECAUSE OF USE IN RESTART CONTROL.					(CCS MPAC + 1)	

R0356 THIS ROUTINE LEAVES THE WITLIST CALL AS GIVEN BY WCADRTAB.

0357	REF	46 LAST 135	13,6636	6 4516 1	WTCALL	AD	ONE	DT-1 IN A ON ENTRY. (FROM CCS.)
03572			13,6637	4 0000 0	COM			STORE NEGATIVE OF DT IN TEMDT.
0358	REF	1	13,6640	5 0117 0	TS	TEMDET		
0359	REF	5 LAST 135	13,6641	2 0115 0	INDEX	POINTER		
0360	REF	3 LAST 135	13,6642	3 6001 0	CAF	WCADRTAB		PICK UP CADR FOR THIS CALL.
0361	REF	3 LAST 135	13,6643	5 0122 0	TS	GOLOC		GOLOC+1 AND -1 ALREADY SET-UP.
0362	REF	19 LAST 135	13,6644	2 0120 0	WTCALL2	INDEX	LOC	FIRST GET TBASE - TIME1
03625	REF	1	13,6645	4 0663 0	CS	TBASE2 -1		TBASE STORED NEGATIVELY
0363			13,6646	2 5777 1	EXTEND			
03635	REF	1	13,6647	6 0036 1	SJ	TIME1		TBASE - TIME1

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0364	REF	101 LAST 136	13,6650	1 0000 0	CCS	A	THIS SHOULD BE NEGATIVE IF ALL OK.
03645			13,6651	4 0000 0	COM		GET POSMAX - A.
0365	REF	1	13,6652	6 6663 1	AD	OCT37776	1 BIT SHY OF POSMAX.
03655	REF	47 LAST 136	13,6653	6 4516 1	AD	ONE	RESTORE BIT LOST BY CCS.
0366	REF	2 LAST 136	13,6654	6 0117 0	AD	TEM DT	TIME1 - TBASE - DT NOW IN A.
0367	REF	102 LAST 137	13,6655	1 0000 0	CCS	A	TEST IT. SHOULD BE NEGATIVE.
0368	REF	47 LAST 121	13,6656	3 5501 0	CAF	ZERO	EXCEEDED TIME. BAD,BAD...
0369			13,6657	0 6661 0	TC	+2	(+0 JUST POSSIBLE.)
0370			13,6660	0 6661 0	TC	+1	YES, EVERYTHING OK.
0371	REF	48 LAST 137	13,6661	6 4516 1	AD	ONE	NOW IS THE TIME.
0372	REF	4 LAST 136	13,6662	0 0121 0	TC	GOLOC - 1	

03725			13,6663	37776 0	OCT37776	OCT	37776	POS MAX - 1
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0373	REF	1	13,6664	3 6707 1	SINDIR	CAF	TCSWRET	
0374	REF	5 LAST 137	13,6665	5 0123 1		TS	GOLOC + 1	
0375	REF	6 LAST 136	13,6666	2 0115 0		INDEX	POINTER	
0376	REF	1	13,6667	3 6003 1		CAF	CADRTAB	PICK UP CADR TO GO TO.
0377	REF	6 LAST 137	13,6670	5 0122 0		TS	GOLOC	
0378	REF	7 LAST 137	13,6671	2 0115 0		INDEX	POINTER	
0379	REF	1	13,6672	2 6002 1		INDEX	PRIOTAB	IT POINTS AT THE ERASABLE LOCATION OF DT
0380			13,6673	4 0000 0		CS	0	NEG OF DT IN A.
03805	REF	3 LAST 137	13,6674	5 0117 0		TS	TEM DT	
0381	REF	1	13,6675	0 6644 1		TC	WTCALL2	JOIN THERE TO RECOMPUTE TIME REMAINING.

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P0382 GETS CURRENT JOB (OR TASK) RERUNNING.

0383	REF	8	LAST	137	13,6676	2	0115	0	CURNTJOB	INDEX	POINTER	
0384	REF	2	LAST	137	13,6677	3	6003	1		CAF	CADRTAB	
0385	REF	7	LAST	137	13,6700	5	0122	0		TS	GOLOC	PUT ADDRESS THERE (CADR)
0386	REF	2	LAST	137	13,6701	3	6707	1		CAF	TCSWRET	
0387	REF	8	LAST	138	13,6702	5	0123	1		TS	GOLOC + 1	WHERE TO WHEN DONE.
0388	REF	9	LAST	138	13,6703	2	0115	0		INDEX	POINTER	
0389	REF	2	LAST	137	13,6704	3	6002	0		CAF	PRIOTAB	PRIORITY TABLE.
0390	REF	103	LAST	137	13,6705	1	0000	0		CCS	A	TEST IT.
0391	REF	1			13,6706	0	6713	1		TC	ITSAPRIO	+N = PRIORITY.
0392	REF	2	LAST	123	13,6707	0	5702	1	TCSWRET	TC	SWRETURN	+0 = NO JOB OR TASK.
0393	REF	1			13,6710	0	6720	1		TC	SHINDIRT	-N = SHORT INDIRECT FORM.
0394	REF	49	LAST	137	13,6711	6	4516	1		AD	ONE	-0 = IMMEDIATE WAITLIST CALL.
0395	REF	9	LAST	138	13,6712	0	0121	0		TC	GOLOC -1	-0 WILL CRASH OUT HERE...
0396	REF	50	LAST	138	13,6713	6	4516	1	ITSAPRIO	AD	ONE	RESTORE CORRECT PRIORITY VALUE.
0397	REF	10	LAST	138	13,6714	5	0121	0		TS	GOLOC - 1	SAVE THERE TEMPORARILY.
0398	REF	1			13,6715	3	3226	1		CAF	TCFINDVC	N3 RPROVISION FOR NOVAC.
0399	REF	11	LAST	138	13,6716	3	0121	0		XCH	GOLOC - 1	PICKING UP PRIORITY AGAIN.
0400	REF	12	LAST	138	13,6717	0	0121	0		TC	GOLOC - 1	AND GET THE JOB STARTED. (EXIT VIA SWRET

R0401 SHORT INDIRECT SECTION IS NOT USED AS YET.

0402	REF	104	LAST	138	13,6720	2	0000	0	SHINDIRT	INDEX	A	
0403					13,6721	4	0001	1		CS	1	CCS DECREASED ADDRESS BY 1 OF DT LOC.
04035	REF	4	LAST	137	13,6722	5	0117	0		TS	TEMPT	
0404	REF	2	LAST	137	13,6723	0	6644	1		TC	WTCALL2	-DT IN A WHEN REJOINING WTCALL.

R0405 TBASE REGISTERS CONTAIN NEGATIVE OF TIME AT START OF SEQUENCE.

R0406 ROUTINE TO GENERATE NEW DELTA T (LONGTIME) FOR LONGCALL.

0407	REF	1			13,6724	0	2677	0	NULONGDT	TC	READTIME + 1	GET TIME. (ALREADY INHIBITED.)
0408	REF	48	LAST	137	13,6725	3	5501	0		CAF	ZERO	
0409	REF	1			13,6726	6	1463	1		AD	TCUTOFF + 1	(POSITIVE NUMBER)
0410	REF	1			13,6727	6	0573	0		AD	RUPTSTOR + 1	(NEGATIVE NUMBER)
0411	REF	5	LAST	136	13,6730	6	0117	0		AD	RECALL + 1	
0412	REF	17	LAST	128	13,6731	5	1461	0		TS	LONGTIME + 1	(COULD OVERFLOW)
0413	REF	49	LAST	138	13,6732	3	5501	0		CAF	ZERO	
0414	REF	2	LAST	138	13,6733	6	1462	0		AD	TCUTOFF	
0415	REF	2	LAST	138	13,6734	6	0572	1		AD	RUPTSTOR	
0416	REF	6	LAST	138	13,6735	6	0116	1		AD	RECALL	
0417	REF	18	LAST	138	13,6736	3	1460	1		XCH	LONGTIME	NO OVERFLOW.
0418	REF	19	LAST	138	13,6737	1	1460	0		CCS	LONGTIME	TEST FOR POSITIVE DT.
0419	REF	1			13,6740	0	5761	1		TC	ISWRETRN	(DONT HAVE TO USE ICALLS IF SAME BANK.)

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0420				13,6741	0 6743 1	TC	+2	
0421	REF	1		13,6742	0 6746 1	TC	BADLONG	
0422	REF	20	LAST 138	13,6743	1 1461 1	CCS	LONGTIME + 1	
0423	REF	2	LAST 138	13,6744	0 5761 1	TC	ISWRETRN	
0424				13,6745	0 6746 1	TC	+1	
0425	REF	50	LAST 138	13,6746	3 5501 0	CAF	ZERO	
0426	REF	21	LAST 139	13,6747	5 1460 1	TS	LONGTIME	
0427	REF	51	LAST 138	13,6750	3 4516 1	CAF	ONE	LEAVE A CALL FOR 1 DT.
0428	REF	22	LAST 139	13,6751	5 1461 0	TS	LONGTIME + 1	
0429	REF	3	LAST 139	13,6752	0 5761 1	TC	ISWRETRN	...AND EXIT.
R0430	THIS COULD BE MODIFIED EASILY TO CHANGE BAD DT POLICY.							

$$TC_{CUTOFF} = T_{NOW} + TC_{COAST}$$

L FRESH START AND RESTART

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0001				04,6705		BANK 4		
R0002				FRESH START - A KEYBOARD REQUEST TO INITIALIZE THE SYSTEM.				
0003				04,6705	2 0017 0	SLAP1	INHINT	
0004	REF	51	LAST 139	04,6706	3 5501 0		CAF	ZERO
0005	REF	1		04,6707	5 1763 1		TS	FAILREG
0006	REF	4	LAST 124	04,6710	5 0612 1		TS	MODREG
00065	REF	1		04,6711	5 1075 1		TS	REDOCNTR
								ZERO ONLY DURING FRESH START.
0007	REF	2	LAST 48	04,6712	3 4513 1		CAF	BIT4
0008	REF	1		04,6713	5 0726 1	SLAP2	TS	OLDERR
A0009								DISABLE IMU FAIL FOR 5 SECS.
A0010								CURTAINS ENTERS HERE FROM THATSALL.
A0011								DISPLOCK (BIT4 OF STATE), UPLOCK (BIT2 OF STATE), EXTVBACT (BIT3 OF STATE) ARE ZEROED BELOW (FRESH START ONLY).
0012	REF	52	LAST 140	04,6714	3 5501 0		CAF	ZERO
0013	REF	1		04,6715	5 1765 1		TS	ERCOUNT
0014	REF	1		04,6716	0 7200 1		TC	STARTSUB
								SUBROUTINE DOES MOST OF THE WORK.
0015	REF	1		04,6717	3 4477 1	NOGO	CAF	MAXPROG
0016	REF	59	LAST 109	04,6720	5 0077 1		TS	BUF
0017	REF	52	LAST 139	04,6721	4 4516 0		CS	ONE
0018	REF	60	LAST 140	04,6722	2 0077 0		INDEX	BUF
0019	REF	2	LAST 120	04,6723	5 0650 1		TS	PHASE1
0020				04,6724	4 0000 0		COM	
0021	REF	61	LAST 140	04,6725	2 0077 0		INDEX	BUF
0022	REF	2	LAST 120	04,6726	5 0656 1		TS	-PHASE1
0023	REF	62	LAST 140	04,6727	1 0077 0		CCS	BUF
0024	REF	1		04,6730	0 6720 1		TC	NOGO +1
00248	REF	1		04,6731	5 0011 1		TS	OUT1
0025	REF	1		04,6732	5 1762 0		TS	SMODE
								RESET OUT1 HERE INSTEAD OF IN STARTSUB.
								DISABLE SELF-CHECK.
0026	REF	6	LAST 78	04,6733	3 4500 0		CAF	BIT15
0027	REF	1		04,6734	5 0724 0	DSP12D	TS	DSPTAB +12D
0028	REF	2	LAST 140	04,6735	5 0725 1	DSP13D	TS	DSPTAB +13D
								TELL T4RUPT TO TURN OFF ALL C RELAYS.
0029	REF	1		04,6736	3 7344 0		CAF	OCT40010
0030	REF	3	LAST 140	04,6737	5 0723 1	DSP11D	TS	DSPTAB +11D
								LEAVE IMU IN FINE ALIGN
0031	REF	1		04,6740	5 0727 0		TS	WASKSET
								DISABLE KSAMP DURING INITIAL TRANSIENT.
0032	REF	1		04,6741	3 4512 0		CAF	BIT5
0033	REF	4	LAST 118	04,6742	0 2173 0		TC	WAITLIST
0034	REF	1		04,6743	10771 1		CADR	KENABLE
								FOR 160 MS.
0035	REF	1		04,6744	3 0007 0		XCH	IN3
0036	REF	2	LAST 140	04,6745	3 0007 0		XCH	IN3
0037	REF	1		04,6746	7 7342 1		MASK	OPTMODES

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0038	REF	1		04,6747	5 0730 0	TS	WASOPSET	
0039	REF	1		04,6750	3 7360 0	CAF	SWINIT	INITIALIZE SWITCH BIT AREA ON FRESH
0040	REF	13	LAST 123	04,6751	5 0645 0	TS	STATE	START ONLY.
0041	REF	2	LAST 141	04,6752	3 7361 1	CAF	SWINIT +1	
0042	REF	14	LAST 141	04,6753	5 0646 0	TS	STATE +1	
0043	REF	3	LAST 141	04,6754	3 7362 1	CAF	SWINIT +2	
0044	REF	15	LAST 141	04,6755	5 0647 1	TS	STATE +2	
0045	REF	2	LAST 140	04,6756	4 0726 0	CS	OLDERR	SEE IF CURTAINS CALLED FRESH START.
0046	REF	2	LAST 140	04,6757	7 4512 1	MASK	BIT5	
0047	REF	105	LAST 138	04,6760	1 0000 0	CCS	A	
0048	REF	1		04,6761	0 6764 1	TC	STARTSW	
0049	REF	2	LAST 36	04,6762	0 3007 0	TC	ALARM	
0050				04,6763	00301 0	OCT	00301	
0051	REF	1		04,6764	0 7135 1	STARTSW TC	ENDFRESH	
0052	REF	1		04,6765	3 2160 1	ESTART CAF	PRI025	FIRE UP INITIALIZATION JOB.
0053	REF	3	LAST 124	04,6766	0 2046 1	TC	FINDVAC	
0054	REF	1		04,6767	67411 1	CADR	BEGIN501	
0055	REF	2	LAST 141	04,6770	0 7135 1	TC	ENDFRESH	
0056	REF	1		04,6771	3 7343 1	KENABLE CAF	OCT50	COMMANDED FINE ALIGN.
0057	REF	2	LAST 140	04,6772	5 0727 0	TS	WASKSET	
0058	REF	2	LAST 110	04,6773	3 4505 0	CAF	BIT10	REMOVE IMU FAIL INHIBIT IN 5 SECS.
0059	REF	5	LAST 140	04,6774	0 2173 0	TC	WAITLIST	
0060	REF	1		04,6775	30201 1	CADR	IFAILOK	
0061	REF	4	LAST 114	04,6776	0 2256 1	TC	TASKOVER	
0062	REF	1		04,6777	5 1764 0	THATSALL TS	SFAIL	CURTAINS - FLUSH MISSION PROGRAM.
0063				04,7000	2 0017 0	INHINT		
0064	REF	1		04,7001	3 7003 0	CAF	BITS4&5	DO FRESH START AND PROGRAM ALARM.
0065	REF	1		04,7002	0 6713 1	TC	SLAP2	
0066	REF	1			4477	MAXPROG	EQUALS FIVE	
0067				04,7003	00030 1	BITS4&5	OCT 30	
00671				04,7004	00120 1	BITS5&7	OCT 120	

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P0068 WHENEVER A GO SEQUENCE (GOJAM) IS FIRED, GOPROG IS CALLED TO RESTART ANY COMPUTER ACTIVITY THAT
 R0070 MAY HAVE BEEN GOING ON AT THE TIME. (A NUMBER OF ALARMS SUCH AS PARITY FAILURE OR POWER FAILURE CAUSE GOJAM).
 R0072 THE FUNCTION OF GOPROG IS TO INITIALIZE THE COMPUTER SUB-SYSTEM (I. E., NO C RELAYS ARE CHANGED, ETC.) AND
 R0074 RESTART ALL MAJOR ROUTINES WHOSE PHASE BITS INDICATE ACTIVITY.

00741	REF	1		04,7005	1 1760 0	GOPROG	CCS	ERESTORE	RESTORE TWO ERASABLE REGISTERS IF RESTART OCCURS WHILE SELF-CHECK HAS REMOVED CONTENTS OF THESE REGISTERS.
00742				04,7006	0 7010 1		TC	+2	
00743	REF	1		04,7007	0 7020 1		TC	GOPROG2	
00744				04,7010	4 1776 1		CS	1776	
00745	REF	106	LAST 141	04,7011	4 0000 0		CS	A	RESTORE C(X)
00746				04,7012	2 1777 0		NDX	1777	
00747				04,7013	5 0001 0		TS	0001	
00748				04,7014	4 1775 1		CS	1775	
00749	REF	107	LAST 142	04,7015	4 0000 0		CS	A	RESTORE C(X-1) SHOULD BE SYS FLAG FOR ENGINE ON.
007491				04,7016	2 1777 0		NDX	1777	
007492				04,7017	5 0000 1		TS	0000	
0075	REF	1		04,7020	3 4512 0	GOPROG2	CAF	DVMONMSK	
00751	REF	1		04,7021	7 0646 1		MASK	FLAGWRD1	SEE IF ENGINE WAS ON. YES..PUT IT BACK ON. NO...ZERO IT.
00752	REF	108	LAST 142	04,7022	1 0000 0		CCS	A	
00753	REF	3	LAST 110	04,7023	3 4502 1		CAF	BIT13	
00754	REF	2	LAST 140	04,7024	5 0011 1		TS	OUT1	
00759	REF	15	LAST 120	04,7025	3 5503 1		CAF	TWO	SET RESTART FAIL INDICATION, WHICH WILL BE REMOVED AFTER SUCCESSFUL VERIFICATION OF PHASE TABLE AGREEMENT.
0076	REF	3	LAST 141	04,7026	5 0726 1		TS	OLDERR	
0077	REF	2	LAST 140	04,7027	0 7200 1		TC	STARTSUB	
0078	REF	1		04,7030	3 0004 0		XCH	INO	IF BOTH ERROR RESET AND MARK ARE DEPRESSED, FALL INTO FRESH START TO HOPEFULLY PREVENT OR STOP RECURRING GOS.
0079	REF	1		04,7031	7 7341 1		MASK	HUNGMASK	
0080	REF	1		04,7032	6 7035 0		AD	HUNGCODE	
0081	REF	109	LAST 142	04,7033	1 0000 0		CCS	A	RESTART COMPLEMENT OF INO HUNG SETTING. RESTART
0082	REF	1		04,7034	0 7040 1		TC	PHASECHK -1	
0083				04,7035	37755 1	HUNGCODE	DCT	37755	
0084	REF	2	LAST 142	04,7036	0 7040 1		TC	PHASECHK -1	
0085	REF	2	LAST 140	04,7037	0 6717 0		TC	NOGO	
0086	REF	2	LAST 140	04,7040	3 4477 1		CAF	MAXPROG	PHASE BITS ARE KEPT IN TWO COPIES, ONE DIRECT AND ONE COMPLEMENTED. THIS SECTION MAKES SURE ALL ENTRIES IN EACH SATISFIES THIS RULE AS AN INDICATION OF THE GOODNESS OF ERASABLE MEMORY. IF THE TEST FAILS, DO A FRESH START WITH THE MODE LIGHTS SET TO 00 TO TELL THE STORY. P.(-P) AND (-P).(--P) SHOULD BOTH BE +0 FOR A LOGICAL MATCH.
0087	REF	165	LAST 136	04,7041	5 0115 1	PHASECHK	TS	MPAC	
0088	REF	110	LAST 142	04,7042	2 0000 0		INDEX	A	
0089	REF	7	LAST 19	04,7043	4 0650 0		CS	PHASETAB	
0090	REF	63	LAST 140	04,7044	5 0077 1		TS	BUF	
0091				04,7045	4 0000 0		COM		
0092	REF	166	LAST 142	04,7046	2 0115 0		INDEX	MPAC	
0093	REF	2	LAST 19	04,7047	7 0656 0		MASK	PHASEBAR	
0094	REF	1		04,7050	0 7142 1		TC	ZEROTEST	
0095	REF	167	LAST 142	04,7051	2 0115 0		INDEX	MPAC	
0096	REF	3	LAST 142	04,7052	4 0656 0		CS	PHASEBAR	
0097	REF	64	LAST 142	04,7053	7 0077 0		MASK	BUF	
0098	REF	2	LAST 142	04,7054	0 7142 1		TC	ZEROTEST	
0099	REF	168	LAST 142	04,7055	1 0115 0		CCS	MPAC	

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0100	REF	3 LAST 142	04,7056	0 7041 0	TC	PHASECHK	
01005	REF	1	04,7057	5 1443 0	TS	DISPCNTR	ENABLE VG DISPLAY GRAB
0101	REF	4 LAST 142	04,7060	5 0726 1	TS	OLDERR	NO RESTART FAIL.
01011	REF	53 LAST 140	04,7061	3 4516 1	CAF	ONE	INCREMENT REDOCNTR.
01012	REF	2 LAST 140	04,7062	6 1075 1	AD	REDOCNTR	
01013	REF	3 LAST 143	04,7063	5 1075 1	TS	REDOCNTR	
01016	REF	7 LAST 140	04,7064	4 4500 1	CS	BIT15	
01017	REF	4 LAST 140	04,7065	7 0725 0	MASK	DSPTAB + 13D	PICK UP ALL BUT BIT 15.
01018	REF	8 LAST 143	04,7066	6 4500 0	AD	BIT15	SET BIT 15 TO FORCE RESETTNG RELAYS.
01019	REF	5 LAST 143	04,7067	5 0725 1	TS	DSPTAB + 13D	MIGHT TAKE A WHILE TO GET OUT.
0102	REF	3 LAST 140	04,7070	3 0007 0	CHECKIN3	XCH	PUT PRESENT MODES INTO WAS REGISTERS.
0103	REF	4 LAST 143	04,7071	3 0007 0		XCH	IN3
0104	REF	3 LAST 141	04,7072	5 0727 0		TS	WASKSET
0105	REF	8 LAST 45	04,7073	7 4720 1		MASK	LOW7
0106	REF	4 LAST 143	04,7074	3 0727 0		XCH	WASKSET
0107	REF	2 LAST 140	04,7075	7 7342 1		MASK	OPTMODES
01075	REF	2 LAST 141	04,7076	5 0730 0		TS	WASOPSET
0108	REF	1	04,7077	3 7004 1	CAF	BITS567	IMU ATTITUDE CONTROL OR ENTRY MODE.
01081	REF	5 LAST 143	04,7100	7 0727 1	MASK	WASKSET	
01082	REF	111 LAST 142	04,7101	1 0000 0	CCS	A	IS IT IN ONE OF THESE MODES.
01083	REF	53 LAST 140	04,7102	4 5501 1	CS	ZERO	YES.. PUT +0 INTO CDUIND.
01084			04,7103	4 0000 0	COM		NO... PUT -0 INTO CDUIND.
01085	REF	1	04,7104	5 0677 1	TS	CDUIND	
0109	REF	2 LAST 142	04,7105	1 0004 1	CCS	IN0	
0110	REF	1	04,7106	0 7114 1	TC	GOJUMP	
0111	REF	2 LAST 143	04,7107	0 7114 1	TC	GOJUMP	
0112			04,7110	0 7111 1	TC	+1	
0113	REF	2 LAST 110	04,7111	4 4503 1	CS	BIT12	
0114	REF	3 LAST 143	04,7112	7 0730 1	MASK	WASOPSET	
0115	REF	4 LAST 143	04,7113	5 0730 0	TS	WASOPSET	

L FRESH START AND RESTART										USER'S OWN PAGE NO. 5		
0116	REF	3	LAST	142	04,7114	3	4477	1	GOJUMP	CAF	MAXPROG	SCAN PHASE TABLE FOR ACTIVITY.
0117	REF	20	LAST	136	04,7115	5	0120	1		TS	LOC	
0118					04,7116	2	0016	1		RELINT		OPEN THE INTERRUPT GATE SO THAT EACH
0119					04,7117	2	0017	0		INHINT		GO DISPATCH HAS 10 MS.
0120	REF	54	LAST	143	04,7120	6	4516	1		AD	ONE	GROUP NUMBER IN PROG.
0121	REF	1			04,7121	5	0573	0		TS	PROG	
0122	REF	112	LAST	143	04,7122	2	0000	0		INDEX	A	SEE IF GROUP ACTIVE.
0123	REF	3	LAST	140	04,7123	1	0647	0		CCS	PHASE1 -1	
0124	REF	1			04,7124	0	7154	0		TC	PROGON	VALID IF PHASE LESS THAN 127.
0125	REF	1			04,7125	0	7166	1		TC	GOTERM	DO REQUESTED PHASE TERMINATE.
0126	REF	113	LAST	144	04,7126	1	0000	0		CCS	A	INACTIVE IF PHASE = -1.
0127	REF	1			04,7127	0	7175	0		TC	RSTFAIL2	BAD DATA IF -0.
0128	REF	21	LAST	144	04,7130	1	0120	0	GORETURN	CCS	LOC	
0129	REF	3	LAST	143	04,7131	0	7115	0		TC	GOJUMP +1	
0130	REF	1			04,7132	3	2172	1		CAF	PRI037	FIRE UP JOB TO DISPLAY FAILREG
0131	REF	2	LAST	114	04,7133	0	2052	1		TC	NOVAC	
0132	REF	1			04,7134		23725	0		CADR	DOALARM	
0133					04,7135	2	0016	1	ENDFRESH	RELINT		
0134	REF	1			04,7136	0	5654	0		TC	BANKCALL	DISPLAY MAJOR MODES.
0135	REF	2	LAST	122	04,7137		16003	0		CADR	DSPMM	
0136	REF	1			04,7140	0	5720	1		TC	POSTJUMP	
0137	REF	1			04,7141		23415	0		CADR	DUMMYJOB	THIS REVERTS TO THE IDLING JOB.
0138	REF	114	LAST	144	04,7142	1	0000	0	ZEROTEST	CCS	A	
0139	REF	3	LAST	142	04,7143	0	6717	0		TC	NOGO	RESTART FROM GO IMPOSSIBLE.
0140	REF	99	LAST	123	04,7144	0	0001	0		TC	Q	OK SO FAR
0141	REF	4	LAST	144	04,7145	0	6717	0		TC	NOGO	
0142	REF	5	LAST	144	04,7146	0	6717	0		TC	NOGO	

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P01421 INTERNAL RESTART BY PROGRAM CONTROL TO FLUSH OUT WAITLIST AND EXEC.

01422				04,7147	2 0017 0	ENEMA	INHINT			
01423	REF	3	LAST	142	04,7150	0 7200 1	TC	STARTSUB		A STRANGE INSTRUCTION TO BEAR THIS NAME.
01427	REF	54	LAST	143	04,7151	4 5501 1	CS	ZERO		
01428	REF	2	LAST	141	04,7152	5 1764 0	TS	SFAIL		ALL 7 IN SFAIL DENOTES PROGRAMMED REDO.
01429	REF	1			04,7153	0 7070 1	TC	CHECKIN3		

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P0143 DISPATCH OR TERMINATE RESTART GROUPS.

0144	REF	55	LAST	144	04,7154	6	4516	1	PROGON	AD	ONE	PHASE BITS TO MPAC.
0145	REF	169	LAST	142	04,7155	5	0115	1		TS	MPAC	
0146	REF	9	LAST	143	04,7156	4	4720	1		CS	LOW7	CHECK SIZE.
0147	REF	170	LAST	146	04,7157	7	0115	0		MASK	MPAC	
0148	REF	115	LAST	144	04,7160	1	0000	0		CCS	A	
0149	REF	2	LAST	144	04,7161	0	7175	0		TC	RSTFAIL2	RESTART FAIL - OUT OF RANGE.
0150	REF	22	LAST	144	04,7162	2	0120	0		INDEX	LOC	JUMP TO GOCADR LOC.
0151	REF	1			04,7163	3	7350	0		CAF	GOCADR	
0152	REF	3	LAST	121	04,7164	0	5662	0		TC	SWCALL	
0153	REF	1			04,7165	0	7130	1		TC	GORETURN	ON RETURN FROM SWCALL.
0154	REF	56	LAST	146	04,7166	4	4516	0	GOTERM	CS	ONE	IF A RESTART GROUP HAD BEEN REQUESTED TO
0155	REF	23	LAST	146	04,7167	2	0120	0		INDEX	LOC	TERMINATE, DO THE TERMINATE NOW.
0156	REF	4	LAST	144	04,7170	5	0650	1		TS	PHASE1	
0157					04,7171	4	0000	0		COM		
0158	REF	24	LAST	146	04,7172	2	0120	0		INDEX	LOC	
0159	REF	3	LAST	140	04,7173	5	0656	1		TS	-PHASE1	
0160	REF	2	LAST	146	04,7174	0	7130	1		TC	GORETURN	
0161	REF	16	LAST	142	04,7175	3	5503	1	RSTFAIL2	CAF	TWO	BAD DATA IN RESTART TABLES - FAIL.
0162	REF	5	LAST	143	04,7176	5	0726	1		TS	OLDERR	
0163	REF	6	LAST	144	04,7177	0	6717	0		TC	NOGO	

L FRESH START AND RESTART

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P0164 INITIALIZATION SUBROUTINE, CONTAINING INITIALIZATION COMMON TO BOTH FRESH START (KEYBOARD REQUEST) AND
 R0166 RESTART (IN RESPONSE TO A GO SEQUENCE).

0167	REF	100	LAST	144	04,7200	3	0001	0	STARTSUB	XCH	Q	
0168	REF	65	LAST	142	04,7201	5	0077	1	TS	BUF		EXEC TEMPS ARE AVAILABLE TO US.
0169	REF	11	LAST	118	04,7202	3	4476	0	CAF	POSMAX		T3 AND T4 OVERFLOW AS SOON AS POSSIBLE.
0170	REF	7	LAST	119	04,7203	5	0037	0	TS	TIME3		(POSMAX IS PSEUDO INTERRUPT SIGNAL IN
0171	REF	1			04,7204	5	0040	0	TS	TIME4		CASE RUPT SIGNALLED BEFORE TS TIME3).
0172	REF	4	LAST	118	04,7205	3	4520	1	CAF	NEG1/2		INITIALIZE WAITLIST DELTA-TS.
01723	REF	24	LAST	118	04,7206	5	0560	1	TS	LST1 +6		
01726	REF	25	LAST	147	04,7207	5	0557	0	TS	LST1 +5		
0173	REF	26	LAST	147	04,7210	5	0556	1	TS	LST1 +4		
0174	REF	27	LAST	147	04,7211	5	0555	1	TS	LST1 +3		
0175	REF	28	LAST	147	04,7212	5	0554	0	TS	LST1 +2		
0176	REF	29	LAST	147	04,7213	5	0553	1	TS	LST1 +1		
0177	REF	30	LAST	147	04,7214	5	0552	0	TS	LST1		
0178	REF	3	LAST	119	04,7215	4	2260	0	CS	ENDTASK		SET ALL TASKS TO DUMMY TASK.
01783	REF	17	LAST	119	04,7216	5	0570	0	TS	LST2 +7		
01786	REF	18	LAST	147	04,7217	5	0567	0	TS	LST2 +6		
0179	REF	19	LAST	147	04,7220	5	0566	1	TS	LST2 +5		
0180	REF	20	LAST	147	04,7221	5	0565	1	TS	LST2 +4		
0181	REF	21	LAST	147	04,7222	5	0564	0	TS	LST2 +3		
0182	REF	22	LAST	147	04,7223	5	0563	1	TS	LST2 +2		
0183	REF	23	LAST	147	04,7224	5	0562	0	TS	LST2 +1		
0184	REF	24	LAST	147	04,7225	5	0561	0	TS	LST2		
0185	REF	55	LAST	145	04,7226	4	5501	1	CS	ZERO		MAKE ALL EXECUTIVE REGISTER SETS
0186	REF	22	LAST	109	04,7227	5	0134	1	TS	PRIORITY +8D		AVAILABLE (EXCEPT THIS ONE).
0187	REF	23	LAST	147	04,7230	5	0144	0	TS	PRIORITY +16D		
0188	REF	24	LAST	147	04,7231	5	0154	1	TS	PRIORITY +24D		
0189	REF	25	LAST	147	04,7232	5	0164	1	TS	PRIORITY +32D		
0190	REF	26	LAST	147	04,7233	5	0174	0	TS	PRIORITY +40D		
0191	REF	27	LAST	147	04,7234	5	0204	1	TS	PRIORITY +48D		
0192	REF	28	LAST	147	04,7235	5	0214	0	TS	PRIORITY +56D		
0193	REF	1			04,7236	5	0033	1	TS	DSRUPTSW		-0 GIVES US 40 MS TO GET READY FOR T4.
0194	REF	2	LAST	143	04,7237	5	0677	1	TS	CDUIND		MAKE IMU AND OPTICS AVAILABLE.
0195	REF	1			04,7240	5	0703	0	TS	OPTIND		

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0196	REF	1		04,7241	3 7356 0	CAF	VAC1ADRC	MAKE ALL VAC AREAS AVAILABLE.
0197	REF	2 LAST 99		04,7242	5 0216 1	TS	VAC1USE	
0198	REF	1		04,7243	6 7357 1	AD	LTHVACA	
0199	REF	2 LAST 99		04,7244	5 0272 0	TS	VAC2USE	
0200	REF	2 LAST 148		04,7245	6 7357 1	AD	LTHVACA	
0201	REF	2 LAST 99		04,7246	5 0346 0	TS	VAC3USE	
0202	REF	3 LAST 148		04,7247	6 7357 1	AD	LTHVACA	
0203	REF	2 LAST 99		04,7250	5 0422 0	TS	VAC4USE	
0204	REF	4 LAST 148		04,7251	6 7357 1	AD	LTHVACA	
0205	REF	2 LAST 99		04,7252	5 0476 1	TS	VAC5USE	
0206	REF	3 LAST 141		04,7253	3 4505 0	CAF	BIT10	THIS REGISTER SET BECOMES DUMMY JOB.
0207	REF	29 LAST 147		04,7254	5 0124 0	TS	PRIORITY	
0210	REF	1		04,7255	3 3232 1	CAF	TEN	TURN OFF ALL DISPLAY SYSTEM RELAYS.
0211	REF	171 LAST 146		04,7256	5 0115 1	TS	MPAC	
0212	REF	3 LAST 143		04,7257	4 4503 1	CS	BIT12	
0213	REF	172 LAST 148		04,7260	2 0115 0	INDEX	MPAC	
0214	REF	6 LAST 143		04,7261	5 0710 1	TS	DSPTAB	
0215	REF	173 LAST 148		04,7262	1 0115 0	CCS	MPAC	
0216	REF	1		04,7263	0 7256 1	TC	DSPOFF	
02165	REF	2 LAST 142		04,7264	5 1760 1	TS	ERESTORE	
0217	REF	1		04,7265	5 0041 1	TS	UPLINK	THESE MIGHT PICK UP AN INCREMENT DURING
0218				04,7266	5 0056 1	TS	56	A GO.
0219	REF	1		04,7267	5 0706 0	TS	DSPCNT	SKIPS TO HERE WHEN FINISHED WITH C(A)=0.
0220	REF	15 LAST 108		04,7270	5 0215 1	TS	NEWJOB	
0222	REF	1		04,7271	5 0627 1	TS	CADRSTOR	
0223	REF	1		04,7272	5 0613 0	TS	REQRET	
0224	REF	1		04,7273	5 0633 1	TS	CLPASS	
0225	REF	1		04,7274	5 0625 0	TS	MONSAVE	KILL MONITOR
0226	REF	1		04,7275	5 0626 0	TS	MONSAVE1	
0227	REF	1		04,7276	5 0630 1	TS	GRABLOCK	
0228	REF	1		04,7277	5 0602 0	TS	VERBREG	
0229	REF	1		04,7300	5 0603 1	TS	NOUNREG	
0230	REF	1		04,7301	5 0634 0	TS	DSPLIST	
0231	REF	2 LAST 148		04,7302	5 0635 1	TS	DSPLIST +1	
0232	REF	3 LAST 148		04,7303	5 0636 1	TS	DSPLIST +2	

L FRESH START AND RESTART

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0233	REF	1		04,7304	5 0764 1	TS	LGYRO	MAKE GYRO ROUTINES AVAILABLE.
0234	REF	1		04,7305	5 0756 0	TS	GCOMP	ZERO COMPENSATING GYRO TORQUES.
0235	REF	2	LAST 149	04,7306	5 0757 1	TS	GCOMP +1	
0236	REF	3	LAST 149	04,7307	5 0760 0	TS	GCOMP +2	
0237	REF	4	LAST 149	04,7310	5 0761 1	TS	GCOMP +3	
0238	REF	5	LAST 149	04,7311	5 0762 1	TS	GCOMP +4	
0239	REF	6	LAST 149	04,7312	5 0763 0	TS	GCOMP +5	
0240	REF	1		04,7313	5 0731 1	TS	DESKSET	NO COMPUTER COMMAND.
0241	REF	1		04,7314	5 0732 1	TS	DESOPSET	(SAME AS IMU).
0242	REF	2	LAST 20	04,7315	5 0733 0	TS	IMUCADR	INITIALIZE MODE-SWITCHING.
0243	REF	1		04,7316	5 0734 1	TS	OPTCADR	
0244	REF	1		04,7317	5 0675 0	TS	TMMARKER	
0245	REF	1		04,7320	5 0735 0	TS	MARKSTAT	MAKE MARK SYSTEM AVAILABLE.
02465	REF	2	LAST 136	04,7321	4 0036 0	CS	TIME1	SAVE TIME OF LAST RESTART. (MINUS VALUE)
02466	REF	1		04,7322	5 1077 0	TS	REDOTIME + 1	
0247	REF	3	LAST 61	04,7323	3 4475 0	CAF	SIX	(MAY NOT GET ANY ENDPULSES BEFORE T4).
0248	REF	1		04,7324	5 0670 0	TS	TELCOUNT	
0249	REF	1		04,7325	3 7345 1	CAF	LPHASE1	
0250	REF	1		04,7326	5 0673 0	TS	DNTMGOTO	
0251	REF	1		04,7327	3 2566 0	CAF	LDNLST1	
0252	REF	1		04,7330	5 0672 1	TS	DNLSTADR	
0253	REF	1		04,7331	3 7347 0	CAF	NOUTCON	
0254	REF	1		04,7332	5 0707 1	TS	NOUT	
0255	REF	1		04,7333	4 7346 0	CS	BIT3/4	ZERO ONLY DSPLOCK (BIT4 OF STATE) AND
0256	REF	16	LAST 141	04,7334	7 0645 1	MASK	STATE	EXTVBACT (BIT3 OF STATE) FOR RESTART.
0257	REF	17	LAST 149	04,7335	5 0645 0	TS	STATE	UPLOCK (BIT2 OF STATE) IS ZEROED ONLY
A0258								IN FRESH START.
0259	REF	1		04,7336	4 3227 1	CS	VD1	
0260	REF	1		04,7337	5 0614 1	TS	DSPCOUNT	
0261	REF	66	LAST 147	04,7340	0 0077 1	TC	BUF	DONE.

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0262			04,7341	40037 1	HUNGMASK	OCT	40037	KEYCODE AND MARK BUTTON ONLY
0263			04,7342	35000 1	OPTMODES	OCT	35000	
0264			04,7343	00050 1	OCT50	OCT	50	FINE ALIGN + TRANSFER SWITCH. IMU FINE ALIGN C-RELAY SETTING.
0265			04,7344	40010 1	OCT40010	OCT	40010	
0266	REF	1	04,7345	02413 0	LPHASE1	ADRES	DNPHASE1	
0267			04,7346	00014 1	BIT3/4	OCT	14	
0268			04,7347	00013 0	NOUTCON	DEC	11	
0269	REF	4 LAST 124	04,7350	02124 1	GoCADR	CADR	ENDOFJOB	FOR 501 ONLY
0270	REF	1	04,7351	26563 0		CADR	RESTARTS	GROUP 2 RESTARTS.
0271	REF	2 LAST 150	04,7352	26563 0		CADR	RESTARTS	GROUP 3 RESTARTS.
0272	REF	3 LAST 150	04,7353	26563 0		CADR	RESTARTS	GROUP 4 RESTARTS.
0273	REF	4 LAST 150	04,7354	26563 0		CADR	RESTARTS	GROUP 5 RESTARTS.
0274	REF	5 LAST 150	04,7355	26563 0		CADR	RESTARTS	GROUP 6 RESTARTS.
0275	REF	3 LAST 148	04,7356	00216 1	VAC1ADRC	ADRES	VAC1USE	
0276			04,7357	00054 0	LTHVACA	DEC	44	
0277			04,7360	01340 1	SWINIT	OCT	01340	
0278			04,7361	00000 1		OCT	00000	STATE +1
0279			04,7362	00000 1		OCT	00000	STATE +2

L 001 DOWN-TELEMETRY PROGRAM

USER'S OWN PAGE NO. 1

R0001 TELEMETRY PROCESSOR

R0002 -----

R0003 THE FOLLOWING TELEMETRY PROGRAM IS DESIGNED TO TRANSMIT TELEMETRY DATA VIA OUT4 WHEN AN ENDPULSE
 R0005 FROM THE NORTH AMERICAN TELEMETRY PROGRAMMER TRIGGERS INTERRUPT 6, WHICH INITIATES THIS ROUTINE. IT OPERATES
 R0007 IN CONJUNCTION WITH (BUT ASYNCHRONOUSLY FROM) THE T4RUPT PROGRAM, WHICH IS INITIATED EVERY 60 MS. VIA INTERRUPT
 R0009 3.

0010						2377		BANK	1		
0011	REF	2	LAST 149	2377	1	0670	1	DOWNRUPT	CCS	TELCOUNT	PNZ IS NORMAL SETTING - +0 INDICATES
0012	REF	1		2400	0	2407	0		TC	DOWNTMOK	TM FAILURE SINCE ENDPULSES ARE OCCURING
0013	REF	1		2401	0	2571	0		TC	TMFAIL	TOO FREQUENTLY. THE COUNTER IS SET TO +7
0014	REF	4	LAST 148	2402	4	4505	1		CS	BIT10	BLOCK TM ENDPULSES UNTIL ERROR RESET
0015	REF	3	LAST 142	2403	7	0011	0		MASK	OUT1	COMMAND IS GIVEN.
0016	REF	5	LAST 151	2404	6	4505	0		AD	BIT10	
0017	REF	4	LAST 151	2405	5	0011	1		TS	OUT1	
0018	REF	2	LAST 36	2406	0	2266	1		TC	NBRESUME	BY DSRUPT EVERY 120 MS.
0019	REF	3	LAST 151	2407	5	0670	0	DOWNTMOK	TS	TELCOUNT	NORMAL MODE - STORE DECREMENTED COUNT.
0020	REF	2	LAST 149	2410	0	0673	0		TC	DNTMGOTO	JUMP TO APPROPRIATE DOWNLINK PHASE.

R0021 IN PHASE 7, SEND REQUIRED NUMBER OF DUMMY MARKS, ENTERING PHASE 1 WHEN FINISHED. ANY REAL MARKERS
 R0023 OCCURING HERE WILL NOT BE SENT UNTIL PHASE 3.

0024	REF	1		2411	1	0676	1	DNPHASE7	CCS	MARKERCT	REDUCE TO ZERO.
0025	REF	1		2412	0	2541	0		TC	DUMMARK	

R0026 PHASE 1 SENDS LIST ID AND SETS UP PHASE 2.

0027	REF	1		2413	3	2553	0	DNPHASE1	CAF	LPHASE2	
0028	REF	3	LAST 151	2414	5	0673	0		TS	DNTMGOTO	
0029	REF	1		2415	3	2561	1		CAF	LTHCOMA	NUMBER OF WORDS IN COMMON LIST A.
0030	REF	1		2416	5	0674	1		TS	TMINDEX	
0031	REF	2	LAST 149	2417	4	0672	0		CS	DNLSTADR	CHANGES IN DNLSTADR NOT HONORED UNTIL
0032				2420	4	0000	0		COM		THIS PHASE.
0033	REF	1		2421	5	0671	1		TS	LDATA1ST	
0034	REF	2	LAST 38	2422	7	4302	0		MASK	LOW11	
0035	REF	1		2423	6	4170	0		AD	60K	AT FOD'S REQUEST.
0036	REF	1		2424	0	2545	1		TC	W.O.=1	

L 001 DOWN-TELEMETRY PROGRAM

USER'S OWN PAGE NO. 2

P0037 PHASE 2 SENDS COMMON LIST A: DSPTAB, T2, T1, I/O, CDUS, ETC. NO MARKERS ARE INTERSPERSED WITH THE DATA.

0039	REF	2	LAST 151	2425	1	0674	0	DNPHASE2	CCS	TMINDEX	SEE IF MORE DATA TO BE SENT.
0040	REF	1		2426	0	2505	0	TC	PHASE2A		

0041	REF	1		2427	3	2554	1	CAF	LPHASE3	IF NOT, BEGIN PHASE 3.
0042	REF	4	LAST 151	2430	5	0673	0	TS	DNTMGOTO	
0043	REF	1		2431	3	4473	0	CAF	NOMRKRS	NUMBER OF MARKERS/SECOND.
0044	REF	2	LAST 151	2432	5	0676	0	TS	MARKERCT	
0045	REF	1		2433	3	2563	0	CAF	LTHLSTA	NUMBER WORDS IN PARTICULAR LISTS A.
0046	REF	3	LAST 152	2434	5	0674	1	TS	TMINDEX	

R0047 PHASE 3 - SEND DOWN PARTICULAR LIST A WITH REAL MARKERS INTER-LEAVED.

0049	REF	2	LAST 149	2435	1	0675	1	DNPHASE3	CCS	TMMARKER	SEE IF ANY MARKERS TO BE SENT.
0050	REF	1		2436	0	2536	0	TC	DOMARKER		

0051	REF	4	LAST 152	2437	1	0674	0	CCS	TMINDEX	SEND DOWN PART. LIST A ENTRY IF ANY. (COMMON TO PHASES 3 AND 6.)
0052	REF	1		2440	0	2517	0	TC	PHASE36A	

0053	REF	1		2441	3	2555	0	CAF	LPHASE4	END OF PHASE 3, START PHASE 4.
0054	REF	5	LAST 152	2442	5	0673	0	TS	DNTMGOTO	

R0055 PHASE 4: SEND DUMMY MARKERS UNTIL MARKERCT = 0.

0056	REF	3	LAST 152	2443	1	0676	1	DNPHASE4	CCS	MARKERCT	(NONE MAY BE REQUIRED)
0057	REF	2	LAST 151	2444	0	2541	0	TC	DUMMARK		

0058	REF	1		2445	3	2556	0	CAF	LPHASE5	END OF PHASE 4 - BEGIN PHASE 5.
------	-----	---	--	------	---	------	---	-----	---------	---------------------------------

0059	REF	6	LAST 152	2446	5	0673	0	TS	DNTMGOTO	NUMBER OF WORDS IN COMMON LIST B - 1.
0060	REF	1		2447	3	2562	1	CAF	LTHCOMB	

R0061 PHASE 5: SEND COMMON LIST B WITH NO MARKERS INTER-LEAVED.

0062	REF	5	LAST 152	2450	5	0674	1	PHASE5A	TS	TMINDEX	(ENTERS HERE FIRST TIME ONLY).
------	-----	---	----------	------	---	------	---	---------	----	---------	--------------------------------

0063	REF	116	LAST 146	2451	2	0000	0		INDEX	A
------	-----	-----	----------	------	---	------	---	--	-------	---

0064	REF	1		2452	2	2612	1		INDEX	COMLSTB
------	-----	---	--	------	---	------	---	--	-------	---------

0065				2453	4	0000	0		CS	0
------	--	--	--	------	---	------	---	--	----	---

0066	REF	1		2454	0	2511	0		TC	DATADWNF
------	-----	---	--	------	---	------	---	--	----	----------

0067	REF	6	LAST 152	2455	1	0674	0	DNPHASE5	CCS	TMINDEX	NORMAL PHASE 5 ENTRY.
0068	REF	1		2456	0	2450	1	TC	PHASE5A		

L 001 DOWN-TELEMETRY PROGRAM

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P0069 AT END OF PHASE 5, BEGIN PHASE 6. THE ADDRESS OF PARTICULAR LIST B IMMEDIATELY PRECEEDS
 R0071 PARTICULAR LIST A.

0072	REF	1		2457	3	2557	1	CAF	LPHASE6	
0073	REF	7 LAST 152		2460	5	0673	0	TS	DNTMGOTO	
0074	REF	1		2461	3	2564	1	CAF	LTHLSTB	NUMBER OF WORDS IN PARTICULAR LISTS B.
0075	REF	7 LAST 152		2462	5	0674	1	TS	TMINDEX	
0076	REF	2 LAST 152		2463	3	4473	0	CAF	NOMRKRS	
0077	REF	4 LAST 152		2464	5	0676	0	TS	MARKERCT	
0078	REF	1		2465	3	2570	1	CAF	LISTBANK	GET ADDRESS OF PART. LIST B.
0079	REF	33 LAST 122		2466	3	0015	0	XCH	BANKREG	
0080	REF	2 LAST 151		2467	3	0671	1	XCH	LDATEALST	
0081	REF	4 LAST 124		2470	6	4335	0	AD	MINUS1	
0082	REF	117 LAST 152		2471	2	0000	0	INDEX	A	
0083				2472	4	0000	0	CS	0	SO WE CAN RUN IN ERASABLE.
0084				2473	4	0000	0	COM		
0085	REF	3 LAST 153		2474	3	0671	1	XCH	LDATEALST	
0086	REF	34 LAST 153		2475	5	0015	0	TS	BANKREG	

R0087 PHASE 6: PARTICULAR LIST B AND REAL MARKERS.

0088	REF	3 LAST 152		2476	1	0675	1	DNPHASE6	CCS	TMMARKER	
0089	REF	2 LAST 152		2477	0	2536	0		TC	DOMARKER	
0090	REF	8 LAST 153		2500	1	0674	0		CCS	TMINDEX	
0091	REF	2 LAST 152		2501	0	2517	0		TC	PHASE36A	
0092	REF	1		2502	3	2560	0	CAF	LPHASE7	SWITCH TO PHASE 7 TO SUPPLY REQUIRED	
0093	REF	8 LAST 153		2503	5	0673	0	TS	DNTMGOTO	NUMBER OF DUMMY MARKS.	
0094	REF	1		2504	0	2411	1	TC	DNPHASE7		

L 001 DOWN-TELEMETRY PROGRAM

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P0095 OUT OF SEQUENCE ROUTINES.

0096	REF	9	LAST	153	2505	5	0674	1	PHASE2A	TS	TMINDEX	SELECT DATA WORD FOR COMMON LIST A IN IN FIXED-FIXED.
0097	REF	118	LAST	153	2506	2	0000	0		INDEX	A	
0098	REF	1			2507	2	2576	0		INDEX	COMLSTA	
0099					2510	4	0000	0		CS	0	
0100					2511	4	0000	0	DATADWNF	COM		PHASE 5 (COMMON LIST B) EXITS HERE.
0101	REF	1			2512	5	0014	1		TS	OUT4	
0102	REF	1			2513	4	4506	1		CS	BIT9	
0103	REF	5	LAST	151	2514	7	0011	0		MASK	OUT1	
0104	REF	6	LAST	154	2515	5	0011	1		TS	OUT1	NO BANK SWITCH REQUIRED.
0105	REF	3	LAST	151	2516	0	2266	1		TC	NBRESUME	
0106	REF	10	LAST	154	2517	5	0674	1	PHASE36A	TS	TMINDEX	
0107	REF	2	LAST	153	2520	3	2570	1		CAF	LISTBANK	
0108	REF	35	LAST	153	2521	3	0015	0		XCH	BANKREG	PHASES 3 AND 6 (PARTICULAR DATA LISTS) EXIT HERE
0109	REF	3	LAST	119	2522	5	0030	1		TS	BANKRUPT	
0110	REF	4	LAST	153	2523	1	0671	0		CCS	LDATA1ST	(SAVES 2 MCT).
0111	REF	11	LAST	154	2524	6	0674	1		AD	TMINDEX	
0112	REF	119	LAST	154	2525	2	0000	0		INDEX	A	(1 COMPENSATES FOR ABOVE CCS.)
0113					2526	2	0001	1		INDEX	1	
0114					2527	4	0000	0		CS	0	
0115					2530	4	0000	0		COM		
0116	REF	2	LAST	154	2531	5	0014	1		TS	OUT4	
0117	REF	2	LAST	154	2532	4	4506	1		CS	BIT9	
0118	REF	7	LAST	154	2533	7	0011	0		MASK	OUT1	
0119	REF	8	LAST	154	2534	5	0011	1		TS	OUT1	
0120	REF	1			2535	0	2264	0		TC	RESUME	
0121	REF	5	LAST	153	2536	1	0676	1	DOMARKER	CCS	MARKERCT	COME HERE TO SHIP DOWN REAL MARKER. PROTECT AGAINST TOO MANY TMMARKERS BEING SENT DOWN WITHIN ONE SECOND REDUCE MARKERCT (NEVER IS ZERO ABOVE).
01211					2537	0	2541	0		TC	+2	
01212	REF	101	LAST	147	2540	0	0001	0		TC	0	
0122	REF	6	LAST	154	2541	5	0676	0	DUMMARK	TS	MARKERCT	
0123	REF	56	LAST	147	2542	3	5501	0		CAF	ZERO	AT FOD'S REQUEST. PHASE 1 EXITS HERE.
0124	REF	4	LAST	153	2543	3	0675	0		XCH	TMMARKER	
0125	REF	1			2544	6	2565	0		AD	DN74K	
0126	REF	3	LAST	154	2545	5	0014	1	W.O.=1	TS	OUT4	
0127	REF	3	LAST	154	2546	4	4506	1		CS	BIT9	
0128	REF	9	LAST	154	2547	7	0011	0		MASK	OUT1	
0129	REF	4	LAST	154	2550	6	4506	0		AD	BIT9	
0130	REF	10	LAST	154	2551	5	0011	1		TS	OUT1	
0131	REF	4	LAST	154	2552	0	2266	1		TC	NBRESUME	

L 001 DOWN-TELEMETRY PROGRAM

USER'S OWN PAGE NO. 5

P0132 CONSTANTS.

0133	REF	1	2553	02425 0	LPHASE2	ADRES	DNPHASE2	ADDRESSES FOR DNTMGOTO.
0134	REF	1	2554	02435 1	LPHASE3	ADRES	DNPHASE3	
0135	REF	1	2555	02443 0	LPHASE4	ADRES	DNPHASE4	
0136	REF	1	2556	02455 1	LPHASE5	ADRES	DNPHASE5	
0137	REF	1	2557	02476 0	LPHASE6	ADRES	DNPHASE6	
0138	REF	2 LAST 153	2560	02411 1	LPHASE7	ADRES	DNPHASE7	
0139			2561	00032 0	LTHCOMA	DEC	26	LENGTH OF COMMON LIST A.
0140			2562	00015 0	LTHCOMB	DEC	13	LENGTH OF COMMON LIST B - 1.
0141			2563	00025 0	LTHLSTA	DEC	21	PARTICULAR LIST A.
0142			2564	00040 0	LTHLSTB	DEC	32	PARTICULAR LIST B.
0143			2565	74000 1	DN74K	OCT	74000	
0144	REF	4 LAST 104		4473	NOMRKRS	EQUALS	THREE	
0145	REF	1	2566	06067 0	LDNLST1	ADRES	501LSTA1) 3
0146	REF	1	2567	06001 0	LDNLST2	ADRES	501LSTA2	
0147	REF	2 LAST 155	2570	20067 1	LISTBANK	CADR	501LSTA1	
R0148		SUBROUTINE COMMON TO UPLINK AND DOWNLINK TO TURN ON THE TM FAIL LIGHT.						
0150	REF	3 LAST 140	2571	4 4513 0	TMFAIL	CS	BIT4	
0151	REF	11 LAST 154	2572	7 0011 0		MASK	OUT1	
0152	REF	4 LAST 155	2573	6 4513 1		AD	BIT4	
0153	REF	12 LAST 155	2574	5 0011 1		TS	OUT1	
0154	REF	102 LAST 154	2575	0 0001 0		TC	Q	

L 001 DOWN-TELEMETRY PROGRAM

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P0155 COMMON LISTS A AND B.

0156	REF	1		2576	00051 0	COMLSTA	ADRES	CDUZ	27
0157	REF	1		2577	00050 1		ADRES	CDUY	26
0158	REF	1		2600	00047 1		ADRES	CDUX	25
0159	REF	2	LAST 114	2601	00647 1		ADRES	FLAGWRD2	24
0160	REF	2	LAST 142	2602	00646 0		ADRES	FLAGWRD1	23
0161	REF	18	LAST 149	2603	00645 0		ADRES	STATE	22
0162	REF	13	LAST 155	2604	00011 1		ADRES	OUT1	21
0163	REF	5	LAST 143	2605	00007 0		ADRES	IN3	20
0164	REF	1		2606	00006 1		ADRES	IN2	19
0165	REF	3	LAST 143	2607	00004 0		ADRES	IN0	18
0166	REF	3	LAST 149	2610	00036 1		ADRES	TIME1	17
0167	REF	1		2611	00035 1		ADRES	TIME2	16
0168	REF	7	LAST 148	2612	00725 1	COMLSTB	ADRES	DSPTAB +13D	15/65
0169	REF	8	LAST 156	2613	00724 0		ADRES	DSPTAB +12D	14/64
0170	REF	9	LAST 156	2614	00723 1		ADRES	DSPTAB +11D	13/63
0171	REF	10	LAST 156	2615	00722 0		ADRES	DSPTAB +10D	12/62
0172	REF	11	LAST 156	2616	00721 0		ADRES	DSPTAB +9D	11/61
0173	REF	12	LAST 156	2617	00720 1		ADRES	DSPTAB +8D	10/60
0174	REF	13	LAST 156	2620	00717 0		ADRES	DSPTAB +7	9/59
0175	REF	14	LAST 156	2621	00716 1		ADRES	DSPTAB +6	8/58
0176	REF	15	LAST 156	2622	00715 1		ADRES	DSPTAB +5	7/57
0177	REF	16	LAST 156	2623	00714 0		ADRES	DSPTAB +4	6/56
0178	REF	17	LAST 156	2624	00713 1		ADRES	DSPTAB +3	5/55
0179	REF	18	LAST 156	2625	00712 0		ADRES	DSPTAB +2	4/54
0180	REF	19	LAST 156	2626	00711 0		ADRES	DSPTAB +1	3/53
0181	REF	20	LAST 156	2627	00710 1		ADRES	DSPTAB	2/52

L 001 DOWN-TELEMETRY PROGRAM

USER'S OWN PAGE NO. 7

P0183 PARTICULAR DATA LISTS FOR FLIGHT 501. LIST 1 PROVIDES DATA FOR THE ENTIRE FLIGHT EXCEPT DURING
 R0185 STATE VECTOR UPDATES, FOR WHICH LIST 2 IS USED.

0186			10,6000	SETLOC 20000		
0187	REF	1	10,6000	06006 1	ADRES	501LSTB2
0188	REF	1	10,6001	01117 1	501LSTA2	ADRES COMPNUMB
0189	REF	1	10,6002	01116 0	ADRES	UPOLDMD
0190	REF	1	10,6003	06114 0	ADRES	DNSPARE
0191	REF	2 LAST 157	10,6004	06114 0	ADRES	DNSPARE
0192	REF	3 LAST 157	10,6005	06114 0	ADRES	DNSPARE
0193	REF	1	10,6006	01115 0	501LSTB2	ADRES STBUFF +13D
0194	REF	2 LAST 157	10,6007	01114 1	ADRES	STBUFF +12D
0195	REF	3 LAST 157	10,6010	01113 0	ADRES	STBUFF +11D
0196	REF	4 LAST 157	10,6011	01112 1	ADRES	STBUFF +10D
0197	REF	5 LAST 157	10,6012	01111 1	ADRES	STBUFF +9D
0198	REF	6 LAST 157	10,6013	01110 0	ADRES	STBUFF +8D
0199	REF	7 LAST 157	10,6014	01107 0	ADRES	STBUFF +7
0200	REF	8 LAST 157	10,6015	01106 1	ADRES	STBUFF +6
0201	REF	9 LAST 157	10,6016	01105 1	ADRES	STBUFF +5
0202	REF	10 LAST 157	10,6017	01104 0	ADRES	STBUFF +4
0203	REF	11 LAST 157	10,6020	01103 1	ADRES	STBUFF +3
0204	REF	12 LAST 157	10,6021	01102 0	ADRES	STBUFF +2
0205	REF	13 LAST 157	10,6022	01101 0	ADRES	STBUFF +1
0206	REF	14 LAST 157	10,6023	01100 1	ADRES	STBUFF
0207	REF	1	10,6024	01123 0	ADRES	STCNR
0208	REF	4 LAST 157	10,6025	06114 0	ADRES	DNSPARE
0209	REF	1	10,6026	01211 1	501LSTB1	ADRES TAVEGON +1
0210	REF	2 LAST 157	10,6027	01210 0	ADRES	TAVEGON
0211	REF	1	10,6030	01227 1	ADRES	VAVEGON +5
0212	REF	2 LAST 157	10,6031	01226 0	ADRES	VAVEGON +4
0213	REF	3 LAST 157	10,6032	01225 0	ADRES	VAVEGON +3
0214	REF	4 LAST 157	10,6033	01224 1	ADRES	VAVEGON +2
0215	REF	5 LAST 157	10,6034	01223 0	ADRES	VAVEGON +1
0216	REF	6 LAST 157	10,6035	01222 1	ADRES	VAVEGON
0217	REF	1	10,6036	01221 1	ADRES	RAVEGON +5
0218	REF	2 LAST 157	10,6037	01220 0	ADRES	RAVEGON +4
0219	REF	3 LAST 157	10,6040	01217 1	ADRES	RAVEGON +3
0220	REF	4 LAST 157	10,6041	01216 0	ADRES	RAVEGON +2
0221	REF	5 LAST 157	10,6042	01215 0	ADRES	RAVEGON +1
0222	REF	6 LAST 157	10,6043	01214 1	ADRES	RAVEGON
0223	REF	3 LAST 138	10,6044	01463 1	ADRES	TCUTOFF +1
0224	REF	4 LAST 157	10,6045	01462 0	ADRES	TCUTOFF
0225	REF	1	10,6046	01467 0	ADRES	TIME1GR
0226	REF	1	10,6047	01466 1	ADRES	TIME2GR
0227	REF	1	10,6050	01465 1	ADRES	PIPTIME +1
0228	REF	2 LAST 157	10,6051	01464 0	ADRES	PIPTIME
0229	REF	1	10,6052	01000 0	ADRES	VN +5
0230	REF	2 LAST 157	10,6053	00777 0	ADRES	VN +4

COMMON TO LISTS 1 AND 2

EVENT TIME

L 001 DOWN-TELEMETRY PROGRAM

USER'S OWN PAGE NO. 8

0231	REF	3	LAST	157	10,6054	00776	1	ADRES	VN +3
0232	REF	4	LAST	158	10,6055	00775	1	ADRES	VN +2
0233	REF	5	LAST	158	10,6056	00774	0	ADRES	VN +1
0234	REF	6	LAST	158	10,6057	00773	1	ADRES	VN
0235	REF	1			10,6060	00772	0	ADRES	RN +5
0236	REF	2	LAST	158	10,6061	00771	0	ADRES	RN +4
0237	REF	3	LAST	158	10,6062	00770	1	ADRES	RN +3
0238	REF	4	LAST	158	10,6063	00767	1	ADRES	RN +2
0239	REF	5	LAST	158	10,6064	00766	0	ADRES	RN +1
0240	REF	6	LAST	158	10,6065	00765	0	ADRES	RN
0241	REF	1			10,6066	06026	0	ADRES	501LSTB1
0242	REF	1			10,6067	01457	0	501LSTA1	ADRES TFF +1
0243	REF	2	LAST	158	10,6070	01456	1	ADRES	TFF
0244	REF	1			10,6071	01113	0	ADRES	VRECT +5
0245	REF	2	LAST	158	10,6072	01112	1	ADRES	VRECT +4
0246	REF	3	LAST	158	10,6073	01111	1	ADRES	VRECT +3
0247	REF	4	LAST	158	10,6074	01110	0	ADRES	VRECT +2
0248	REF	5	LAST	158	10,6075	01107	0	ADRES	VRECT +1
0249	REF	6	LAST	158	10,6076	01106	1	ADRES	VRECT
0250	REF	1			10,6077	01105	1	ADRES	RRECT +5
0251	REF	2	LAST	158	10,6100	01104	0	ADRES	RRECT +4
0252	REF	3	LAST	158	10,6101	01103	1	ADRES	RRECT +3
0253	REF	4	LAST	158	10,6102	01102	0	ADRES	RRECT +2
0254	REF	5	LAST	158	10,6103	01101	0	ADRES	RRECT +1
0255	REF	6	LAST	158	10,6104	01100	1	ADRES	RRECT
0256	REF	1			10,6105	00702	1	ADRES	THETAD +2
0257	REF	2	LAST	158	10,6106	00701	1	ADRES	THETAD +1
0258	REF	3	LAST	158	10,6107	00700	0	ADRES	THETAD
0259	REF	1			10,6110	01005	0	ADRES	DELVX +4
0260	REF	2	LAST	158	10,6111	01003	0	ADRES	DELVX +2
0261	REF	3	LAST	158	10,6112	01001	1	ADRES	DELVX
0262	REF	4	LAST	143	10,6113	01075	1	ADRES	REDOCNTR
0263					10,6114	52525	1	DNSPARE	OCT 52525

AT FOD'S REQUEST.

L 001 T4RUPT OUTPUT CONTROL PROGRAMS

USER'S OWN PAGE NO. 1

0001				2630			BANK	1	
0002	REF	57 LAST 154	2630	3 5501 0	T4RUPT	CAF	ZERO		ALONSO THINKS THIS SHOULD BE TURNED OFF
0003	REF	1	2631	5 0010 0		TS	OUTO		EVERY 60 MS AS A MATTER OF COURSE.
0004	REF	2 LAST 147	2632	1 0033 0		CCS	DSRUPTSW		SEE IF THIS IS A SPECIAL RUPT TO
0005	REF	1	2633	0 2643 1		TC	REGRUPT +1		ZERO OUTO 20MS AFTER IT WAS DRIVEN BY
0006	REF	2 LAST 159	2634	0 2642 0		TC	REGRUPT		DSPOUT. IF SO, DSRUPTSW IS NNZ.
0007	REF	57 LAST 146	2635	6 4516 1		AD	ONE		RESTORE DSRUPTSW TO ITS POSITIVE VALUE.
0008	REF	3 LAST 159	2636	5 0033 1		TS	DSRUPTSW		
0009	REF	1	2637	3 2651 1		CAF	40MSRUPT		SET TIME4 TO INTERRUPT 40 MS FROM NOW,
0010	REF	2 LAST 147	2640	5 0040 0		TS	TIME4		RE-ESTABLISHING THE REGULAR 60 MS
0011	REF	5 LAST 154	2641	0 2266 1		TC	NBRESUME		PATTERN. THEN DO NO-BANK-SWITCH RESUME.
0012	REF	2 LAST 95	2642	3 5362 0	REGRUPT	CAF	SEVEN		REGULAR 60 MS RUPT - COUNT DOWN ON
0013	REF	4 LAST 159	2643	5 0033 1	+1	TS	DSRUPTSW		DSRUPTSW.
0014	REF	1	2644	3 2650 0		CAF	LT4RUPTA		CALL IN APPROPRIATE BANK.
0015	REF	36 LAST 154	2645	3 0015 0		XCH	BANKREG		SAVE BANKREG FOR RESUME.
0016	REF	4 LAST 154	2646	5 0030 1		TS	BANKRUPT		
0017	REF	1	2647	0 6115 1		TC	T4RUPTA		
0018	REF	2 LAST 159	2650	20115 0	LT4RUPTA	CADR	T4RUPTA		
0019			2651	37774 1	40MSRUPT	OCT	37774		INTERRUPT IN 40 MS.
R0020	RELTAB IS A PACKED TABLE. RELAYWORD CODE IN UPPER 4 BITS, RELAY CODE								
R0021	IN LOWER 5 BITS.								
0022			2652	04025 1	RELTAB	OCT	04025		
0023			2653	10003 0		OCT	10003		
0024			2654	14031 0		OCT	14031		
0025			2655	20033 0		OCT	20033		
0026			2656	24017 1		OCT	24017		
0027			2657	30036 1		OCT	30036		
0028			2660	34034 1		OCT	34034		
0029			2661	40023 1		OCT	40023		
0030			2662	44035 1		OCT	44035		
0031			2663	50037 0		OCT	50037		
0032			2664	54000 0		OCT	54000		
0033			2665	60000 1	RELTAB11	OCT	60000		
0034			2666	64000 0		OCT	64000		
0035			2667	70000 0	70K	OCT	70000		ALSO USEFUL AS A BANK-SWITCHING MASK.

L 001 T4RUPT OUTPUT CONTROL PROGRAMS

USER'S OWN PAGE NO. 2

P0036 ROUTINE TO ZERO (OR PSEUDO-ZERO) THE OPTICS COUNTERS.

0037 REF 58 LAST 159 2670 3 5501 0 ZEROCTR CAF ZERO
0038 REF 1 2671 5 0052 0 TS OPTX
R0039 RIGHT HERE WE USED TO TEST BIT 13 OF WASOPSET. NOW ASSUME
R0040 UNCONDITIONALLY THAT SXT POWER IS ON (BIT 13 = 1).
0042 REF 1 2672 4 2675 0 CS 20DEGS
0043 REF 1 2673 5 0053 1 TS OPTY
0044 REF 103 LAST 155 2674 0 0001 0 TC Q
0045 2675 16037 1 20DEGS DEC 7199

3 SET OPTY APPROX -20 DEGS (SXT ON)

L 001 T4RUPT OUTPUT CONTROL PROGRAMS

USER'S OWN PAGE NO. 3

P0047 SWITCHED-BANK PORTION OF T4RUPT.

0048					10,6115							
0049	REF	18	LAST	119	10,6115	3	0034	0	T4RUPTA	BANK	10	
0050	REF	3	LAST	119	10,6116	5	0031	0		XCH	OVCTR	SAVE OVCTR.
										TS	OVTRPT	
0051	REF	1			10,6117	3	7047	0		CAF	60MSRUPT	T4 NORMALLY INTERRUPTS EVERY 60 MS.
0052	REF	3	LAST	159	10,6120	5	0040	0		TS	TIME4	
00521	REF	4	LAST	156	10,6121	3	0004	0		XCH	INO	RESET INO TO PRESENT VALUE OF DESCRETES.
00522	REF	1			10,6122	3	6140	1		CAF	DSKYMASK	RESET DOUBLE-ENTRY INTERLOCK IF KEYCODE
00523	REF	5	LAST	161	10,6123	7	0004	1		MASK	INO	HAS DISAPPEARED.
00524	REF	120	LAST	154	10,6124	1	0000	0		CCS	A	
00525	REF	1			10,6125	0	6133	0		TC	DSKYON	
00526					10,6126	0	6130	0		TC	+2	RESET.
00527	REF	2	LAST	161	10,6127	0	6133	0		TC	DSKYON	
00528	REF	3	LAST	141	10,6130	4	4512	1		CS	BIT5	
00529	REF	19	LAST	156	10,6131	7	0645	1		MASK	STATE	
0053	REF	20	LAST	161	10,6132	5	0645	0		TS	STATE	
00531	REF	3	LAST	147	10,6133	1	0677	0	DSKYON	CCS	CDUIND	DO AN IMU-CDU IF DESIRED.
0054	REF	1			10,6134	0	6142	0		TC	DOIMUCDU +1	WITH NEW CDUIND IN A.
0055	REF	2	LAST	161	10,6135	0	6141	0		TC	DOIMUCDU	SET COUNT TO 2.
0056	REF	1			10,6136	0	6223	1		TC	DSRUPTBR	NO CDU. NNZ MEANS CDUS ARE RESERVED.
0057	REF	2	LAST	161	10,6137	0	6223	1		TC	DSRUPTBR	-0 MEANS THEY ARE AVAILABLE.

00571

10,6140 40037 1 DSKYMASK OCT 40037

INCLUDES KEYCODE AND MARK BIT.

L 001 T4RUPT OUTPUT CONTROL PROGRAMS

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P0058 T4RUPT IMU CDU DRIVE - SERVICED EVERY 60 MS.

0059	REF	17	LAST	146	10,6141	3	5503	1	DOIMUCDU	CAF	TWO	SET CDUIND BACK TO 2.
0060	REF	4	LAST	161	10,6142	5	0677	1	+1	TS	CDUIND	
0061	REF	9	LAST	97	10,6143	3	0003	1		XCH	LP	SAVE LP FOR IMU CDU DRIVE ONLY.
0062	REF	1			10,6144	5	0032	0		TS	LPRUPT	
0063	REF	5	LAST	162	10,6145	2	0677	0		INDEX	CDUIND	0 FOR X, 1 FOR Y, AND 2 FOR Z.
0064	REF	4	LAST	158	10,6146	4	0700	1		CS	THETAD	PICK UP DESIRED ANGLE.
0065	REF	1			10,6147	5	0600	1		TS	ITEMP2	
0066	REF	6	LAST	162	10,6150	2	0677	0		INDEX	CDUIND	
0067	REF	2	LAST	156	10,6151	4	0047	0		CS	CDUX	READ AND SAVE CDU COUNTER.
0068	REF	1			10,6152	0	7410	0		TC	2SCOMDIF	DIFFERENCE WITH -0 UNEQUAL TO +0.
0069					10,6153	2	5777	1		EXTEND		RETURNS WITH DIFFERENCE IN A.
0070	REF	1			10,6154	4	6215	0		MP	KG	
0071	REF	4	LAST	119	10,6155	5	0577	1		TS	ITEMP1	COMMAND TO TEMP STORAGE
0072	REF	121	LAST	161	10,6156	1	0000	0		CC5	A	CHECK SIGNUM OF COMMAND
0073	REF	1			10,6157	0	6166	0		TC	POSCOM2	
0074	REF	1			10,6160	0	6220	1		TC	CDURSM	
0075	REF	1			10,6161	0	6163	0		TC	NEGCOM2	
0076	REF	2	LAST	162	10,6162	0	6220	1		TC	CDURSM	

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0077	REF	5	LAST	162	10,6163	5	0577	1	NEGCOM2	TS	ITEMP1	SAVE CCS OF COMMAND.
0078	REF	7	LAST	162	10,6164	4	0677	0		CS	CDUIND	USE NEGATIVE TO SELECT OUT2 PATTERN.
0079	REF	1			10,6165	0	6171	0		TC	CDUOUT	
0080	REF	6	LAST	163	10,6166	5	0577	1	POSCOM2	TS	ITEMP1	SAME AS ABOVE EXCEPT 1+CDUIND SELECTS.
0081	REF	58	LAST	159	10,6167	3	4516	1		CAF	ONE	
0082	REF	8	LAST	163	10,6170	6	0677	1		AD	CDUIND	
0083	REF	19	LAST	161	10,6171	5	0034	0	CDUOUT	TS	OVCTR	
0084	REF	1			10,6172	3	6200	0		CAF	DUMCODE	CODE WHICH INTERRUPTS OUT2 PULSES DURING
0085	REF	1			10,6173	3	0012	1		XCH	OUT2	OUT2 MODIFICATION, BUT ALLOWS DETEC-
0086	REF	1			10,6174	7	7465	0		MASK	LOW8	TION OF THE VERY RARE EVENT THAT THE
0087	REF	2	LAST	163	10,6175	3	0012	1		XCH	OUT2	PULSE THAT RESETS ANOTHER FIELD OF OUT2
0088	REF	1			10,6176	6	6201	1		AD	-DUMCODE	WAS REQUESTED DURING THE ORIGINAL
0089	REF	122	LAST	162	10,6177	1	0000	0		CCS	A	XCH OUT2.
0090					10,6200		02040	1	DUMCODE	OCT	02040	INCOMPLETE OUT2 SETTINGS (X AND OPTX).
0091					10,6201		75737	0	-DUMCODE	OCT	-2040	
0092	REF	1			10,6202	0	7377	0		TC	JACKPOT	THE PROBABILITY OF THIS IS ABOUT ZERO.
0093	REF	7	LAST	163	10,6203	4	0577	0		CS	ITEMP1	FORM 1.0 - ABS(COMMAND).
0094	REF	12	LAST	147	10,6204	6	4476	0		AD	POS MAX	
0095	REF	1			10,6205	5	0042	1		TS	OUTCR1	
0096	REF	2	LAST	163	10,6206	3	6200	0		CAF	DUMCODE	
0097	REF	3	LAST	163	10,6207	3	0012	1		XCH	OUT2	NOW ENABLE OUTCR1 BY SETTING OUT2.
0098	REF	20	LAST	163	10,6210	2	0034	1		INDEX	OVCTR	
0099	REF	1			10,6211	6	7452	0		AD	CDUCODES +2	
0100	REF	4	LAST	163	10,6212	3	0012	1		XCH	OUT2	
0101	REF	2	LAST	163	10,6213	6	6201	1		AD	-DUMCODE	
0102	REF	123	LAST	163	10,6214	1	0000	0		CCS	A	
0103					10,6215		05605	1	KG	DEC	.18	CDU DRIVING GAIN
0104	REF	15	LAST	124	10,6216	0	3062	0		TC	CCSHOLE	
0105	REF	2	LAST	163	10,6217	0	7377	0		TC	JACKPOT	
0106	REF	59	LAST	163	10,6220	3	4516	1	CDURSM	CAF	ONE	RESTORE LP.
0107					10,6221	2	5777	1		EXTEND		
0108	REF	2	LAST	162	10,6222	4	0032	1		MP	LPRUPT	

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P0109 BRANCH ACCORDING TO DSRUPTSW AND PERFORM THE APPROPRIATE DSRUPT FUNCTIONS.

0111	REF	5 LAST 159	10,6223	2 0033 0	DSRUPTBR	INDEX	DSRUPTSW	JUMP ON DSRUPTSW.
0112			10,6224	0 6225 1	TC		+1	
0113	REF	1	10,6225	0 6701 1	TC		TMCHECK	=0
0114	REF	1	10,6226	0 6447 0	TC		LOSCAN	LOOK FOR LIFT OFF EVERY 480 MS.
0115	REF	2 LAST 164	10,6227	0 6701 1	TC		TMCHECK	
0116	REF	1	10,6230	0 6355 1	TC		NWALM	INITIATE NIGHT WATCHMAN JOB.
0117	REF	3 LAST 164	10,6231	0 6701 1	TC		TMCHECK	=4
0118	REF	1	10,6232	0 6501 0	TC		OPTTEST	=5 SERVICE OPTICS CDUS.
0119	REF	4 LAST 164	10,6233	0 6701 1	TC		TMCHECK	=6

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P0120 SYSTEM FAILURE INPUT BITS MONITOR - ENTERED EVERY 480 MS BY T4RUPT.

0122	REF	6	LAST	146	10,6234	1	0726	0	ERRORMON	CCS	OLDERR	IGNORE BITS IF C(OLDERR) = 40000 ORDINARILY POSITIVE.
0123	REF	1			10,6235	0	6240	1	TC	ERRMON		
0124	REF	2	LAST	165	10,6236	0	6240	1	TC	ERRMON		
0125	REF	1			10,6237	0	6463	0	TC	ENDT4ERR		
0126	REF	2	LAST	156	10,6240	3	0006	1	ERRMON	XCH	IN2	REFRESH LAST-SAMPLED-ERRORS REGISTER.
0127	REF	3	LAST	165	10,6241	3	0006	1		XCH	IN2	
0128	REF	1			10,6242	7	6252	0		MASK	ERRMASK	
0129	REF	2	LAST	162	10,6243	5	0600	1		TS	ITEMP2	
0130	REF	2	LAST	165	10,6244	3	6252	1		CAF	ERRMASK	
0131	REF	7	LAST	165	10,6245	7	0726	0		MASK	OLDERR	
0132					10,6246	4	0000	0		COM		
0133	REF	3	LAST	165	10,6247	6	0600	1		AD	ITEMP2	
0134	REF	124	LAST	163	10,6250	1	0000	0		CCS	A	
0135	REF	1			10,6251	0	6255	0		TC	ERRCHANG	CHANGED.
0136					10,6252		07000	0	ERRMASK	OCT	07000	IMU, CDU, AND PIPA FAIL.
0137	REF	2	LAST	165	10,6253	0	6255	0		TC	ERRCHANG	
0138	REF	2	LAST	165	10,6254	0	6463	0		TC	ENDT4ERR	EXIT - NO CHANGE HAS TAKEN PLACE.
0139	REF	3	LAST	165	10,6255	4	6252	0	ERRCHANG	CS	ERRMASK	UPDATE IMU FAIL BITS IN OLDERR.
0140	REF	8	LAST	165	10,6256	7	0726	0		MASK	OLDERR	
0141	REF	4	LAST	165	10,6257	6	0600	1		AD	ITEMP2	
0142	REF	9	LAST	165	10,6260	5	0726	1		TS	OLDERR	
0143	REF	1			10,6261	3	6277	0		CAF	LITESOUT	
0144	REF	21	LAST	156	10,6262	7	0723	0		MASK	DSPTAB +11D	
0145	REF	9	LAST	143	10,6263	6	4500	0		AD	BIT15	TO INDICATE CHANGE.
0146	REF	22	LAST	165	10,6264	5	0723	1		TS	DSPTAB +11D	
0147	REF	18	LAST	162	10,6265	3	5503	1		CAF	TWO	TURN ON LIGHTS ACCORDING TO C(OLDERR).
0148	REF	5	LAST	165	10,6266	5	0600	1	ERRSCAN	TS	ITEMP2	
0149	REF	125	LAST	165	10,6267	2	0000	0		INDEX	A	
0150	REF	4	LAST	148	10,6270	3	4503	0		CAF	BIT12	SELECT BIT IN OLDERR.
0151	REF	10	LAST	165	10,6271	7	0726	0		MASK	OLDERR	
0152	REF	126	LAST	165	10,6272	1	0000	0		CCS	A	
0153	REF	1			10,6273	0	6300	1		TC	BITON	BIT IS PRESENT.
0154	REF	6	LAST	165	10,6274	1	0600	0	ERRSCAN3	CCS	ITEMP2	LOOP THREE TIMES THROUGH.
0155	REF	1			10,6275	0	6266	0		TC	ERRSCAN	
0156	REF	3	LAST	165	10,6276	0	6463	0		TC	ENDT4ERR	FINISHED.
0157					10,6277	37437	0		LITESOUT	OCT	37437	

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P0158 PROCESS ERROR SIGNALS PRESENT. NOTE THAT C(WASKSET) INDICATES THE STATE OF THE SYSTEM SINCE NO RELAYS
 R0160 HAVE BEEN SWITCHED IN THE LAST 120 MS, AND KSAMP WAS EXECUTED 60 MS AGO.

0161	REF	7 LAST 165	10,6300	2 0600 0	BITON	INDEX	ITEMP2	2, 1, OR 0.
0162			10,6301	0 6302 0		TC	+1	
0163	REF	1	10,6302	0 6305 1		TC	IMUFAIL	
0164	REF	1	10,6303	0 6346 0		TC	PIPAFAIL	
0165	REF	1	10,6304	0 6327 1		TC	CDFAIL	
0166	REF	6 LAST 143	10,6305	1 0727 1	IMUFAIL	CCS	WASKSET	FAILURE NOT LEGITIMATE IF IN COARSE ALIGN
0167	REF	1	10,6306	0 6316 0		TC	IMUFAIL2	PURSUCE THIS ONE.
0168	REF	1	10,6307	0 6350 1		TC	NOFAIL	NO MODE-DEPENDENT FAILURE MONITORING
0169	REF	2 LAST 166	10,6310	0 6350 1		TC	NOFAIL	IF MODING FAILURE OR PROCEDURAL FAILURE.
0170	REF	3 LAST 166	10,6311	0 6350 1		TC	NOFAIL	
0171	REF	2 LAST 39	10,6312	3 4507 1	IMUFAIL3	CAF	BIT8	TURN ON IMU FAIL LIGHT.
0172	REF	23 LAST 165	10,6313	6 0723 1	FAILITON	AD	DSPTAB +11D	(WHICH HAD BEEN ZEROED IN ALL LIGHT
0173	REF	24 LAST 166	10,6314	5 0723 1		TS	DSPTAB +11D	POSITIONS).
0174	REF	1	10,6315	0 6274 0		TC	ERRSCAN3	PROCESS NEXT INPUT BIT.
0175	REF	60 LAST 163	10,6316	6 4516 1	IMUFAIL2	AD	ONE	SEE IF COASE ALIGN ACHIEVED.
0176	REF	2 LAST 74	10,6317	7 4515 0		MASK	BIT2	
0177	REF	127 LAST 165	10,6320	1 0000 0		CCS	A	
0178	REF	4 LAST 166	10,6321	0 6350 1		TC	NOFAIL	
0179	REF	5 LAST 155	10,6322	3 4513 1		CAF	BIT4	SEE IF WITHIN 5 SECONDS OF COARSE ALIGN.
0180	REF	11 LAST 165	10,6323	7 0726 0		MASK	OLDERR	
0181	REF	128 LAST 166	10,6324	1 0000 0		CCS	A	
0182	REF	5 LAST 166	10,6325	0 6350 1		TC	NOFAIL	IF SO.
0183	REF	1	10,6326	0 6312 1		TC	IMUFAIL3	FAILED.
0184	REF	7 LAST 166	10,6327	1 0727 1	CDFAIL	CCS	WASKSET	
0185	REF	1	10,6330	0 6336 1		TC	CDFAIL2	FAILURE ONLY IF IN FINE ALIGN.
0186	REF	6 LAST 166	10,6331	0 6350 1		TC	NOFAIL	(SEE NOTE FOR IMUFAIL).
0187	REF	7 LAST 166	10,6332	0 6350 1		TC	NOFAIL	
0188	REF	8 LAST 166	10,6333	0 6350 1		TC	NOFAIL	
0189	REF	2 LAST 104	10,6334	3 4511 0	CDFAIL3	CAF	BIT6	CDU FAIL LIGHT ON.
0190	REF	1	10,6335	0 6313 0		TC	FAILITON	
0191	REF	3 LAST 166	10,6336	4 4511 1	CDFAIL2	CS	BIT6	TURN ON FAIL LIGHT ONLY IF IN FINE ALIGN
0192	REF	8 LAST 166	10,6337	7 0727 1		MASK	WASKSET	
0193	REF	1	10,6340	6 6343 0		AD	-BIT4	
0194	REF	129 LAST 166	10,6341	1 0000 0		CCS	A	
0195	REF	9 LAST 166	10,6342	0 6350 1		TC	NOFAIL	
0196			10,6343	77767 1	-BIT4	OCT	-10	
0197	REF	10 LAST 166	10,6344	0 6350 1		TC	NOFAIL	
0198	REF	1	10,6345	0 6334 0		TC	CDFAIL3	TURN ON THE LIGHT.
0199	REF	1	10,6346	3 4510 1	PIPAFAIL	CAF	BIT7	TURN ON FAIL LIGHT UNCONDITIONALLY.
0200	REF	2 LAST 166	10,6347	0 6313 0		TC	FAILITON	

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0201	REF	8	LAST	166	10,6350	2	0600	0	NOFAIL	INDEX	ITEMP2
0202	REF	5	LAST	165	10,6351	4	4503	1		CS	BIT12
0203	REF	12	LAST	166	10,6352	7	0726	0		MASK	OLDERR
0204	REF	13	LAST	167	10,6353	5	0726	1		TS	OLDERR
0205	REF	2	LAST	166	10,6354	0	6274	0		TC	ERRSCAN3

COMES HERE IF PRESENT MODE INHIBITS FAIL
BITS. THIS MAINTAINS PRESENT ACTUAL
ERRORS IN OLDERR FOR THE NIGHT WATCH-
MANS BENEFIT, IN PARTICULAR.

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P0206 NIGHT-WATCHMAN ALARM, SERVICED EVERY 480 MS BY T4RUPT.

0207	REF	1		10,6355	3 2171 1	NWALM	CAF	PRI036
0208	REF	3 LAST 144		10,6356	0 2052 1		TC	NOVAC
0209	REF	1		10,6357	20364 1		CADR	NWJOB
02091	REF	6 LAST 151		10,6360	4 4505 1		CS	BIT10
02092	REF	14 LAST 156		10,6361	7 0011 0		MASK	OUT1
02093	REF	15 LAST 168		10,6362	5 0011 1		TS	OUT1
0210	REF	1		10,6363	0 6463 0		TC	S4BSCAN

3 RESET BLOCK-ENDPULSE EVERY HALF SECOND.

R0211 NIGHT-WATCHMAN JOB - DIDDLES TMALM FOR 24 MICRO-SEC AFTER VERIFYING THAT NEWJOB IS BEING TESTED.

0213	REF	1		10,6364	3 7503 0	NWJOB	CAF	NWMASK
0214				10,6365	2 0017 0		INHINT	
0215	REF	14 LAST 167		10,6366	7 0726 0		MASK	OLDERR
0216	REF	130 LAST 166		10,6367	1 0000 0		CCS	A
0217	REF	1		10,6370	0 6405 0		TC	NONNWJOB
0218	REF	6 LAST 166		10,6371	4 4513 0	DONW	CS	BIT4
0219	REF	16 LAST 168		10,6372	7 0011 0		MASK	OUT1
0220	REF	104 LAST 160		10,6373	5 0001 0		TS	Q
0221	REF	17 LAST 168		10,6374	4 0011 0		CS	OUT1
0222	REF	7 LAST 168		10,6375	7 4513 0		MASK	BIT4
0223	REF	105 LAST 168		10,6376	6 0001 0		AD	Q
0224	REF	18 LAST 168		10,6377	3 0011 1		XCH	OUT1
0225	REF	19 LAST 168		10,6400	5 0011 1		TS	OUT1
0226	REF	1		10,6401	4 4514 1		CS	BIT3
0227	REF	15 LAST 168		10,6402	7 0726 0		MASK	OLDERR
0228	REF	16 LAST 168		10,6403	5 0726 1		TS	OLDERR
0229	REF	5 LAST 150		10,6404	0 2124 1		TC	ENDOFJOB

DONT ISSUE SIGNAL IF IMU, PIPA, OR
RESTART FAIL IS ON.

RESET INHIBIT INDICATOR.

0230	REF	3 LAST 101		10,6405	6 2261 0	NONNWJOB	AD	BANKMASK
0231	REF	131 LAST 168		10,6406	1 0000 0		CCS	A
0232	REF	1		10,6407	0 6427 0		TC	NOINH
0233	REF	2 LAST 168		10,6410	0 6427 0		TC	NOINH
0234	REF	3 LAST 168		10,6411	0 6427 0		TC	NOINH

SEE IF PIPA FAIL ONLY PROBLEM.

0235	REF	3 LAST 159		10,6412	4 5362 1		CS	SEVEN
0236	REF	5 LAST 140		10,6413	7 0612 0		MASK	MODREG
0237	REF	1		10,6414	6 6417 0		AD	-MODE20
0238	REF	132 LAST 168		10,6415	1 0000 0		CCS	A
0239	REF	4 LAST 168		10,6416	0 6427 0		TC	NOINH
0240				10,6417	77757 1	-MODE20	OCT	-20
0241	REF	5 LAST 168		10,6420	0 6427 0		TC	NOINH

CHECK FOR MODES 22 - 27.

0242	REF	1		10,6421	4 6425 0		CS	MODE21
0243	REF	6 LAST 168		10,6422	6 0612 1		AD	MODREG

NO MODE 20.

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0244	REF 133 LAST 168	10,6423	1 0000 0		CCS	A	
0245	REF 1	10,6424	0 6371 1		TC	DONW	
0246		10,6425	00021 1	MODE21	OCT	21	
0247	REF 2 LAST 169	10,6426	0 6371 1		TC	DONW	
0248	REF 2 LAST 168	10,6427	4 4514 1	NOINH	CS	BIT3	SEE IF WE HAVE HAD TWO CONSECUTIVE
0249	REF 17 LAST 168	10,6430	7 0726 0		MASK	OLDERR	CONSECUTIVE INHIBITS.
0250	REF 3 LAST 169	10,6431	6 4514 0		AD	BIT3	
0251	REF 18 LAST 169	10,6432	3 0726 1		XCH	OLDERR	
0252	REF 4 LAST 169	10,6433	7 4514 1		MASK	BIT3	
0253	REF 134 LAST 169	10,6434	1 0000 0		CCS	A	
0254		10,6435	0 6437 1		TC	+2	
0255	REF 6 LAST 168	10,6436	0 2124 1		TC	ENDOFJOB	
0256		10,6437	2 0016 1		RELINT		
0257	REF 2 LAST 124	10,6440	0 2346 1		TC	CHECKMM	SET MM 77 IF REQUIRED.
0258		10,6441	00077 1		OCT	77	
0259		10,6442	0 6444 0		TC	+2	
0260	REF 7 LAST 169	10,6443	0 2124 1		TC	ENDOFJOB	
0261	REF 1	10,6444	0 2362 1		TC	NEWMODE	
0262		10,6445	00077 1		OCT	77	G AND N FLUSHED.
0263	REF 8 LAST 169	10,6446	0 2124 1		TC	ENDOFJOB	

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P0264 SCAN FOR LIFT-OFF EVERY 480 MS.

0265	REF	4	LAST	165	10,6447	4	0006	0	LOSCAN	CS	IN2	
0266	REF	5	LAST	170	10,6450	4	0006	0		CS	IN2	
0267	REF	4	LAST	161	10,6451	7	4512	1		MASK	BIT5	
0268	REF	135	LAST	169	10,6452	1	0000	0		CCS	A	
0269	REF	2	LAST	168	10,6453	0	6463	0		TC	S4BSCAN	
0270	REF	3	LAST	166	10,6454	3	4515	1		CAF	BIT2	SEE IF SIGNAL ALREADY RECEIVED.
0271	REF	3	LAST	156	10,6455	7	0646	1		MASK	FLAGWRD1	
0272	REF	136	LAST	170	10,6456	1	0000	0		CCS	A	
0273	REF	3	LAST	170	10,6457	0	6463	0		TC	S4BSCAN	
0274	REF	1			10,6460	3	2157	0		CAF	PRI024	
0275	REF	4	LAST	141	10,6461	0	2046	1		TC	FINDVAC	
0276	REF	1			10,6462		64000	0		CADR	LIFTOFF	

R0277 S4B SEPARATE SCANNER - ENTERED EVERY 120 MS.

0278	REF	6	LAST	170	10,6463	3	0006	1	S4BSCAN	XCH	IN2	
0279	REF	7	LAST	170	10,6464	3	0006	1		XCH	IN2	
0280	REF	3	LAST	166	10,6465	7	4507	0		MASK	BIT8	
0281	REF	137	LAST	170	10,6466	1	0000	0		CCS	A	
0282					10,6467	0	6471	0		TC	+2	IF BIT ON.
0283	REF	1			10,6470	0	6534	0		TC	CDRVE	NORMAL CASE.
0284	REF	4	LAST	170	10,6471	3	4507	1		CAF	BIT8	SEE IF FIRST TIME BIT ON.
0285	REF	21	LAST	161	10,6472	7	0646	1		MASK	STATE +1	
0286	REF	138	LAST	170	10,6473	1	0000	0		CCS	A	
0287	REF	2	LAST	170	10,6474	0	6534	0		TC	CDRVE	NO ACTION UNLESS FIRST TIME ON.
0288	REF	2	LAST	141	10,6475	3	2160	1		CAF	PRI025	
0289	REF	5	LAST	170	10,6476	0	2046	1		TC	FINDVAC	
0290	REF	1			10,6477		64336	0		CADR	S4BSMSEP	
0291	REF	3	LAST	170	10,6500	0	6534	0		TC	CDRVE	
0292	REF	4	LAST	170		10,6463			NOOPTCDU	EQUALS	S4BSCAN	
0293	REF	5	LAST	170		10,6463			ENDT4ERR	EQUALS	S4BSCAN	

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P0294 OPTICS CDU DRIVING PROGRAM, SERVICED EVERY 480 MS BY DSRUPT.

0295	REF	2 LAST 147	10,6501	1 0703 1	OPTTEST	CCS	OPTIND	PNZ FOR ACTIVE, NEGATIVE FOR INACTIVE.
0296			10,6502	0 6507 0		TC	+5	DRIVE CDU.
0297			10,6503	0 6506 1		TC	+3	DRIVE CDU.
0298	REF	1	10,6504	0 6463 0		TC	NOOPTCDU	NNZ MEANS RESERVED.
0299	REF	2 LAST 171	10,6505	0 6463 0		TC	NOOPTCDU	-0 MEANS AVAILABLE.
0300	REF	61 LAST 166	10,6506	3 4516 1	+3	CAF	ONE	GOES 1(-1)0.
0301	REF	3 LAST 171	10,6507	5 0703 0	+5	TS	OPTIND	
0302	REF	2 LAST 17	10,6510	5 0637 0		TS	RUPTREG1	SET UP OUT2SUB TO START OUT-COUNTER.
0303	REF	62 LAST 171	10,6511	3 4516 1		CAF	ONE	(TO ADDRESS OUTCR2).
0304	REF	2 LAST 17	10,6512	5 0640 0		TS	RUPTREG2	
0305	REF	4 LAST 171	10,6513	1 0703 1		CCS	OPTIND	DRIVE OPTICS Y DIFFERENT THAN OTHERS.
0306	REF	1	10,6514	0 6525 0		TC	BLIVOT3	OVF UNCORRECTION WONT WORK FOR OPTY.
0307	REF	5 LAST 171	10,6515	2 0703 1	REGDIFF	INDEX	OPTIND	
0308	REF	1	10,6516	4 0704 0		CS	DESOPTX	DESIRED ANGLES.
0309	REF	9 LAST 167	10,6517	5 0600 1		TS	ITEMP2	
0310	REF	6 LAST 171	10,6520	2 0703 1		INDEX	OPTIND	
0311	REF	2 LAST 160	10,6521	4 0052 1		CS	OPTX	READ COUNTER.
0312	REF	2 LAST 162	10,6522	0 7410 0		TC	2SCOMDIF	TAKES DIFFERENCE WITH -0 UNEQUAL TO +0.
0313	REF	1	10,6523	0 6631 0	OPTOUT	TC	OUT2SUB	
0314	REF	6 LAST 170	10,6524	0 6463 0		TC	S4BSCAN	
0315	REF	2 LAST 160	10,6525	4 0053 0	BLIVOT3	CS	OPTY	IF THE DIFFERENCE OVERFLOWS, THE ERROR
0316	REF	2 LAST 171	10,6526	6 0705 0		AD	DESOPTX +1	ERROR SIGNAL IS GREATER THAN 16383, SO
0317	REF	106 LAST 168	10,6527	5 0001 0		TS	Q	JUST THROW IN POSMAX WITH THE RIGHT
0318	REF	1	10,6530	0 6515 0		TC	REGDIFF	SIGN AND CALL IT A DAY. OTHERWISE FOLL-
0319	REF	139 LAST 170	10,6531	2 0000 0		INDEX	A	THE USUAL PROCEDURES.
0320	REF	1	10,6532	4 4477 0		CS	LIMITS	
0321	REF	1	10,6533	0 6523 0		TC	OPTOUT	

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P0322 CDRVE CHANGES A BANK OF C RELAYS IF ANY CHANGE IS INDICATED IN THE C-RELAY PORTION OF DSPTAB.

0324	REF	25	LAST	166	10,6534	1 0725 0	CDRVE	CCS	DSPTAB +13D	SPACECRAFT RELAYS HAVE HIGHEST PRIORITY.
0325	REF	1			10,6535	0 6544 1		TC	CDRVE1	
0326	REF	2	LAST	172	10,6536	0 6544 1		TC	CDRVE1	
0327	REF	3	LAST	151	10,6537	3 4302 1		CAF	LOW11	
0328	REF	26	LAST	172	10,6540	7 0725 0		MASK	DSPTAB +13D	
0329	REF	27	LAST	172	10,6541	5 0725 1		TS	DSPTAB +13D	
0330	REF	1			10,6542	6 2667 1		AD	RELTAB11 +2	
0331	REF	1			10,6543	0 6623 0		TC	DSPLAYC	
0332	REF	28	LAST	172	10,6544	1 0723 0	CDRVE1	CCS	DSPTAB +11D	IMU AND CAUTION LIGHTS.
0333	REF	1			10,6545	0 6554 0		TC	CDRVE2	
0334	REF	2	LAST	172	10,6546	0 6554 0		TC	CDRVE2	
0335	REF	4	LAST	172	10,6547	3 4302 1		CAF	LOW11	
0336	REF	29	LAST	172	10,6550	7 0723 0		MASK	DSPTAB +11D	
0337	REF	30	LAST	172	10,6551	5 0723 1		TS	DSPTAB +11D	
0338	REF	2	LAST	172	10,6552	6 2665 0		AD	RELTAB11	
0339	REF	2	LAST	172	10,6553	0 6623 0		TC	DSPLAYC	
0340	REF	31	LAST	172	10,6554	1 0724 1	CDRVE2	CCS	DSPTAB +12D	OPTICS.
0341	REF	1			10,6555	0 6564 0		TC	DSPOUT	
0342	REF	2	LAST	172	10,6556	0 6564 0		TC	DSPOUT	
0343	REF	5	LAST	172	10,6557	3 4302 1		CAF	LOW11	
0344	REF	32	LAST	172	10,6560	7 0724 1		MASK	DSPTAB +12D	
0345	REF	33	LAST	172	10,6561	5 0724 0		TS	DSPTAB +12D	
0346	REF	3	LAST	172	10,6562	6 2666 0		AD	RELTAB11 +1	
0347	REF	3	LAST	172	10,6563	0 6623 0		TC	DSPLAYC	
0348	REF	2	LAST	149	10,6564	1 0707 0	DSPOUT	CCS	NOUT	ENTERED IN INTERRUPTED STATE AT END OF
0349					10,6565	0 6567 0		TC	+2	DSRUPT
0350	REF	1			10,6566	0 2262 0		TC	LVDSRUPT	
0351	REF	3	LAST	172	10,6567	5 0707 1		TS	NOUT	
0352	REF	59	LAST	160	10,6570	4 5501 1		CS	ZERO	
0353	REF	1			10,6571	5 0600 1		TS	DSRUPTM	SET TO -0 FOR 1ST PASS THRU DSPTAB
0354	REF	2	LAST	148	10,6572	3 0706 0		XCH	DSPCNT	
0355	REF	1			10,6573	6 5504 0		AD	NEGO	TO PREVENT +0
0356	REF	3	LAST	172	10,6574	5 0706 0		TS	DSPCNT	
0357	REF	4	LAST	172	10,6575	2 0706 1	DSPSCAN	INDEX	DSPCNT	
0358	REF	34	LAST	172	10,6576	1 0710 0		CCS	DSPTAB	
0359	REF	5	LAST	172	10,6577	1 0706 1		CCS	DSPCNT	IF DSPTAB ENTRY +, SKIP
0360	REF	1			10,6600	0 6573 0		TC	DSPSCAN -2	IF DSPCNT +, AGAIN
0361	REF	1			10,6601	0 6612 1		TC	DSPLAY	IF DSPTAB ENTRY -, DISPLAY
0362					10,6602	00012 1	TABLNTN	OCT	12	DEC 10 LENGTH OF DSPTAB
0363	REF	2	LAST	172	10,6603	1 0600 0		CCS	DSRUPTM	IF DSRUPTM=+0, 2ND PASS THRU DSPTAB
0364	REF	16	LAST	163	10,6604	0 3062 0		TC	CCSHOLE	(DSPCNT=0). +0 INTO NOUT, RESUME.
0365	REF	4	LAST	172	10,6605	5 0707 1		TS	NOUT	

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0366	REF	2	LAST	172	10,6606	0	2262	0	TC	LVDSRUPT	
0367	REF	3	LAST	172	10,6607	5	0600	1	TS	DSRUPTM	IF DSRUPTM=-0, 1ST PASS THRU DSPTAB
0368	REF	1			10,6610	3	6602	0	CAF	TABLNTN	(DSPCNT=0). +0 INTO DSRUPTM. PASS AGAIN
0369	REF	2	LAST	172	10,6611	0	6574	1	TC	DSPSCAN -1	
0370	REF	63	LAST	171	10,6612	6	4516	1	DSPLAY	AD	ONE
0371	REF	6	LAST	172	10,6613	2	0706	1	INDEX	DSPCNT	
0372	REF	35	LAST	172	10,6614	5	0710	1	TS	DSPTAB	REPLACE POSITIVELY
0373	REF	6	LAST	172	10,6615	7	4302	0	MASK	LOW11	REMOVE BITS 12 TO 15
0374	REF	4	LAST	173	10,6616	5	0600	1	TS	DSRUPTM	
0375	REF	1			10,6617	3	2261	0	CAF	H15	
0376	REF	7	LAST	173	10,6620	2	0706	1	INDEX	DSPCNT	
0377	REF	1			10,6621	7	2652	0	MASK	RELTAB	PICK UP BITS 12 TO 15 OF RELTAB ENTRY
0378	REF	5	LAST	173	10,6622	6	0600	1	AD	DSRUPTM	
0379	REF	2	LAST	159	10,6623	5	0010	0	DSPLAYC	TS	OUT0
0380	REF	1			10,6624	3	7126	0	CAF	20MSRUPT	SET T4 TO INTERRUPT IN 20 MS SO OUT0 MAY
0381	REF	4	LAST	161	10,6625	5	0040	0	TS	TIME4	BE TURNED OFF AS SOON AS POSSIBLE. WHEN
0382	REF	6	LAST	164	10,6626	4	0033	0	CS	DSRUPTSW	THIS RUPT OCCURS, T4 IS RESET TO FIRE
0383	REF	7	LAST	173	10,6627	5	0033	1	TS	DSRUPTSW	IN 40MS, RE-ESTABLISHING THE REGULAR 60.
0384	REF	3	LAST	173	10,6630	0	2262	0	TC	LVDSRUPT	
0385	REF	1					2262			LVDSRUPT	EQUALS OVRESUME

DSPTAB → 10D

11D

12D

13D

BITS

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P0386 OUT2SUB IS USED BY THE GYRO DRIVE AND THE OPTICS CDU DRIVE TO SET THE PROPER SECTION OF OUT2 AND THE
 R0388 PROPER OUT-COUNTER TO DELIVER THE COMMAND ARRIVING IN A.

0389	REF	8	LAST	163	10,6631	5	0577	1	OUT2SUB	TS	ITEMP1	SIGNED COMMAND.
0390	REF	107	LAST	171	10,6632	3	0001	0		XCH	Q	
0391	REF	10	LAST	171	10,6633	5	0600	1		TS	ITEMP2	
0392	REF	9	LAST	174	10,6634	1	0577	0		CCS	ITEMP1	
0393	REF	1			10,6635	0	6644	1		TC	POSCOM	
0394	REF	11	LAST	174	10,6636	0	0600	1		TC	ITEMP2	RETURN TO CALLER ON EITHER ZERO.
0395	REF	1			10,6637	0	6641	1		TC	NEGCOM	
0396	REF	12	LAST	174	10,6640	0	0600	1		TC	ITEMP2	
0397	REF	10	LAST	174	10,6641	5	0577	1	NEGCOM	TS	ITEMP1	CCS OF COMMAND LEFT IN ITEMPI
0398	REF	3	LAST	171	10,6642	4	0637	1		CS	RUPTREG1	0 AND 1 FOR OPTICS - 2, 3, AND 4 FOR GYR
0399	REF	1			10,6643	0	6647	1		TC	SETOUT2	
0400	REF	11	LAST	174	10,6644	5	0577	1	POSCOM	TS	ITEMP1	CCS OF COMMAND.
0401	REF	64	LAST	173	10,6645	3	4516	1		CAF	ONE	
0402	REF	4	LAST	174	10,6646	6	0637	0		AD	RUPTREG1	

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0403	REF	5	LAST	121	10,6647	5	0642	1	SETOUT2	TS	RUPTREG4	
0404	REF	3	LAST	163	10,6650	3	6200	0		CAF	DUMCODE	
0405	REF	5	LAST	163	10,6651	3	0012	1		XCH	OUT2	FOR A DESCRIPTION OF THIS OUT2 PROCEDURE
0406	REF	3	LAST	171	10,6652	2	0640	1		INDEX	RUPTREG2	SEE THE IMUCDU DRIVE PROGRAM EARLIER IN
0407	REF	1			10,6653	7	7465	0		MASK	OUT2MASK	T4RUPT.
0408	REF	6	LAST	175	10,6654	3	0012	1		XCH	OUT2	
0409	REF	3	LAST	163	10,6655	6	6201	1		AD	-DUMCODE	
0410	REF	140	LAST	171	10,6656	1	0000	0		CCS	A	
0411	REF	17	LAST	172	10,6657	0	3062	0		TC	CCSHOLE	
0412	REF	18	LAST	175	10,6660	0	3062	0		TC	CCSHOLE	
0413	REF	3	LAST	163	10,6661	0	7377	0		TC	JACKPOT	
0414	REF	12	LAST	174	10,6662	4	0577	0		CS	ITEMP1	ABS(COMMAND) - 1.
0415	REF	13	LAST	163	10,6663	6	4476	0		AD	POS MAX	FORMS 1.0 - ABS(COMMAND).
0416	REF	4	LAST	175	10,6664	2	0640	1		INDEX	RUPTREG2	
0417	REF	2	LAST	163	10,6665	5	0042	1		TS	OUTCR1	
0418	REF	4	LAST	175	10,6666	3	6200	0		CAF	DUMCODE	ENABLE THE APPROPRIATE OUTCR BY SETTING
0419	REF	7	LAST	175	10,6667	3	0012	1		XCH	OUT2	THE PROPER CODE IN OUT2
0420	REF	6	LAST	175	10,6670	2	0642	0		INDEX	RUPTREG4	
0421	REF	1			10,6671	6	7473	0		AD	OPTCODES +1	
0422	REF	8	LAST	175	10,6672	3	0012	1		XCH	OUT2	
0423	REF	4	LAST	175	10,6673	6	6201	1		AD	-DUMCODE	
0424	REF	141	LAST	175	10,6674	1	0000	0		CCS	A	
0425	REF	19	LAST	175	10,6675	0	3062	0		TC	CCSHOLE	
0426	REF	20	LAST	175	10,6676	0	3062	0		TC	CCSHOLE	
0427	REF	4	LAST	175	10,6677	0	7377	0		TC	JACKPOT	
0428	REF	13	LAST	174	10,6700	0	0600	1		TC	ITEMP2	
0429					10,6701				NOGYROC		EQJALS	
0430					10,6701				ENDGYROC		EQJALS	

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P0431 ALTERNATE 120 MS LEG OF T4RUPT.

0432	REF	4	LAST	168	10,6701	3	5362	0	TMCHECK	CAF	SEVEN	ALLOW UP TO SEVEN TM WORDS UNTIL NEXT
0433	REF	4	LAST	151	10,6702	3	0670	0		XCH	TELCOUNT	DSRUPTO EXECUTION. CHECK LAST TM PERIOD
0434	REF	1			10,6703	6	6705	0		AD	NEG7	TO SEE IF AT LEAST ONE WORD WENT OUT.
0435	REF	142	LAST	175	10,6704	1	0000	0		CCS	A	THIS SATISFIES BOTH HIGH- AND LOW-POWER.
0436					10,6705	7	7770	1	NEG7	DEC	-7	
0437	REF	21	LAST	175	10,6706	0	3062	0		TC	CCSHOLE	
0438					10,6707	0	6711	0		TC	+2	OK - PROCEED.
0439	REF	2	LAST	151	10,6710	0	2571	0		TC	TMFAIL	TURN ON TM FAIL LIGHT BEFORE KSAMP.
0440	REF	6	LAST	156	10,6711	3	0007	0	MODESAMP	XCH	IN3	SAMPLE MODE BITS AND TUCK THEM AWAY
0441	REF	7	LAST	176	10,6712	3	0007	0		XCH	IN3	FOR KSAMP AND OPTSAMP.
0442	REF	1			10,6713	5	0637	0		TS	KSAMPTM	
0443	REF	10	LAST	146	10,6714	7	4720	1		MASK	LOW7	
0444	REF	2	LAST	176	10,6715	3	0637	0		XCH	KSAMPTM	
0445	REF	1			10,6716	7	6770	0		MASK	OPTBITS	
0446	REF	1			10,6717	5	0640	0		TS	OSAMPTM	
0447	REF	6	LAST	161	10,6720	3	0004	0		XCH	INO	THIS CLEARS THE KEY CODE WITHIN 120MS
A0448												OF THE TIME THE KEY WAS RELEASED.
0449	REF	21	LAST	163	10,6721	5	0034	0		TS	OVCTR	SEE IF INHIBIT UP-SYNC BIT IS ON.
0450	REF	2	LAST	166	10,6722	7	4510	0		MASK	BIT7	
0451	REF	143	LAST	176	10,6723	1	0000	0		CCS	A	
0452	REF	3	LAST	176	10,6724	0	2571	0		TC	TMFAIL	IF SO, TURN ON TELEMETRY FAIL LIGHT.
0453	REF	22	LAST	176	10,6725	1	0034	1		CCS	OVCTR	SEE IF MARK BUTTON DOWN.
0454	REF	1			10,6726	0	6734	1		TC	OPTSAMP	
0455	REF	2	LAST	176	10,6727	0	6734	1		TC	OPTSAMP	
0456					10,6730	0	6731	1		TC	+1	
0457	REF	1			10,6731	3	7003	0		CAF	NOMKACPT	DONT INCLUDE MARK ACCEPT INFORMATION.
0458	REF	2	LAST	176	10,6732	7	0640	1		MASK	OSAMPTM	
0459	REF	3	LAST	176	10,6733	5	0640	0		TS	OSAMPTM	

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P0460 OPTICS MODE SAMPLING.

0461	REF	2	LAST 149	10,6734	1 0732 0	OPTSAMP	CCS	DESOPSET	IS COMPUTER COMMANDING
0462	REF	1		10,6735	0 6751 1		TC	OPTCOMM	YES
0463	REF	1		10,6736	0 7043 1		TC	NOOPCOM	NO
0464	REF	6	LAST 167	10,6737	3 4503 0		CAF	BIT12	MAKE SURE WE ARE STILL ZEROING
0465	REF	4	LAST 176	10,6740	7 0640 1		MASK	OSAMPTM	(THIS PORTION ENTERED FOR 30 SEC. DURING
0466	REF	5	LAST 143	10,6741	6 0730 0		AD	WASOPSET	MANUAL OPTICS ZERO).
0467	REF	7	LAST 177	10,6742	7 4503 1		MASK	BIT12	SEE IF CDU-ZERO BIT HAS CHANGED.
0468	REF	144	LAST 176	10,6743	1 0000 0		CCS	A	ALARM IF SO.
0469				10,6744	0 6746 1		TC	+2	
0470	REF	1		10,6745	0 7074 0		TC	LVOPTSMP	
0471	REF	3	LAST 141	10,6746	0 3007 0		TC	ALARM	IF NOT, ALARM ON
0472				10,6747	00101 1		OCT	00101	OPTICS ALARM NO. 1.
0473	REF	2	LAST 177	10,6750	0 7074 0		TC	LVOPTSMP	
0474	REF	5	LAST 117	10,6751	3 4501 1	OPTCOMM	CAF	BIT14	SEE IF COMPUTER-ON SWITCH JUST CHANGED.
0475	REF	6	LAST 177	10,6752	7 0730 1		MASK	WASOPSET	FORM WAS BIT14 - IS BIT14.
0476	REF	108	LAST 174	10,6753	5 0001 0		TS	Q	
0477	REF	6	LAST 177	10,6754	3 4501 1		CAF	BIT14	
0478	REF	5	LAST 177	10,6755	7 0640 1		MASK	OSAMPTM	PRESENT INPUT BITS.
0479				10,6756	4 0000 0		COM		
0480	REF	109	LAST 177	10,6757	6 0001 0		AD	Q	
0481	REF	145	LAST 177	10,6760	1 0000 0		CCS	A	
0482	REF	1		10,6761	0 7010 1		TC	COMP.OFF	SWITCH JUST TURNED OFF.
0483				10,6762	34760 1	OFFMASK	OCT	34760	USED FOR SETTING IMU C-RELAYS.
0484	REF	1		10,6763	0 7017 0		TC	COMP.ON	SWITCH JUST TURNED ON.
0485	REF	3	LAST 177	10,6764	4 0732 0	OPTCOMM2	CS	DESOPSET	SEE IF DESIRED MODE ACHIEVED.
0486	REF	6	LAST 177	10,6765	6 0640 0		AD	OSAMPTM	
0487	REF	146	LAST 177	10,6766	1 0000 0		CCS	A	
0488	REF	1		10,6767	0 6773 1		TC	OPTCTEST	COMMAND NOT EQUAL TO ACTUAL
0489				10,6770	35000 1	OPTBITS	OCT	35000	
0490	REF	1		10,6771	0 7000 0		TC	OPTCOMM3	NO MATCH - SEE IF COMP ON ONLY MISMATCH.
0491	REF	3	LAST 177	10,6772	0 7074 0		TC	LVOPTSMP	DONE IF MODES AGREE.
0492	REF	36	LAST 173	10,6773	1 0724 1	OPTCTEST	CCS	DSPTAB +12D	IS CHANGE COMING.
0493	REF	1		10,6774	0 7027 0		TC	OPTCFAIL	NO - C-RELAY FAILURE OR UNWANTED MANUAL
0494	REF	2	LAST 177	10,6775	0 7027 0		TC	OPTCFAIL	INTERVENTION.
0495	REF	60	LAST 172	10,6776	3 5501 0		CAF	ZERO	LEAVE WAITING FLAG IN WASOPSET.
0496	REF	4	LAST 177	10,6777	0 7075 1		TC	LVOPTSMP +1	
0497	REF	1		10,7000	6 7176 0	OPTCOMM3	AD	-BIT14+1	NO ERROR IF COMPUTER-ON ONLY ONE DIFF.
0498	REF	147	LAST 177	10,7001	1 0000 0		CCS	A	
0499	REF	2	LAST 177	10,7002	0 6773 1		TC	OPTCTEST	
0500				10,7003	31000 0	NOMKACPT	OCT	31000	
0501	REF	3	LAST 177	10,7004	0 6773 1		TC	OPTCTEST	

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0502	REF	7 LAST 177	10,7005	3 4501 1		CAF	BIT14	IN THIS CASE, SET COMP.ON BIT TO 1 IN
0503	REF	7 LAST 177	10,7006	6 0640 0		AD	OSAMPTEM	WASOPSET TO PREVENT +0 FOR CORRECT MODES
0504	REF	5 LAST 177	10,7007	0 7075 1		TC	LVOPTSMP +1	
0505	REF	7 LAST 171	10,7010	1 0703 1	COMP.OFF	CCS	OPTIND	TAKE AGC OUT OF CDU LOOP IF APPROPRIATE.
0506			10,7011	0 7013 1		TC	+2	
0507			10,7012	0 7013 1		TC	+1	POSITIVE MEANS COMPUTER WAS IN LOOP.
0508	REF	65 LAST 174	10,7013	3 4516 1		CAF	ONE	LEAVE CDUS RESERVED (RARE).
0509			10,7014	4 0000 0		COM		-0 REVERTS TO -0.
0510	REF	8 LAST 178	10,7015	5 0703 0		TS	OPTIND	
0511	REF	1	10,7016	0 6764 1		TC	OPTCOMM2	DO MODE CHECK.
0512	REF	9 LAST 178	10,7017	1 0703 1	COMP.ON	CCS	OPTIND	PUT AGC BACK INTO CDU LOOP IF DESIRED.
0513	REF	1	10,7020	0 7023 1		TC	ONALARM	(THIS SHOULD NEVER HAPPEN).
0514	REF	2 LAST 178	10,7021	0 7023 1		TC	ONALARM	
0515	REF	1	10,7022	0 7041 0		TC	ONOK	CDUS HAD BEEN RESERVED.
0516	REF	1	10,7023	0 7034 1	ONALARM	TC	OFAILTST	SEE IF FAIL FLAG ALREADY SET.
0517	REF	4 LAST 177	10,7024	0 3007 0		TC	ALARM	ALARM AND SET FAILURE FLAG.
0518			10,7025	00104 1		OCT	00104	
0519	REF	1	10,7026	0 7032 1		TC	OFAILSET	
0520	REF	2 LAST 178	10,7027	0 7034 1	OPTCFAIL	TC	OFAILTST	SEE IF ALARM ALREADY SOUNDED.
0521	REF	5 LAST 178	10,7030	0 3007 0		TC	ALARM	ALARM AND SET FAIL FLAG IF NOT.
0522			10,7031	00102 1		OCT	00102	
0523	REF	61 LAST 177	10,7032	4 5501 1	OFAILSET	CS	ZERO	
0524	REF	6 LAST 178	10,7033	0 7075 1		TC	LVOPTSMP +1	SET FAIL FLAG AND EXIT.
0525	REF	7 LAST 177	10,7034	1 0730 1	OFAILTST	CCS	WASOPSET	RETURNS TO CALLER IF NO FAILURE ALARM
0526	REF	110 LAST 177	10,7035	0 0001 0		TC	Q	GIVEN. EXITS WITHOUT CHANGING WASOPSET
0527	REF	111 LAST 178	10,7036	0 0001 0		TC	Q	IF SO.
0528	REF	1	10,7037	0 7076 1		TC	NOOPRSET	
0529	REF	2 LAST 178	10,7040	0 7076 1		TC	NOOPRSET	
0533	REF	10 LAST 178	10,7041	5 0703 0	ONOK	TS	OPTIND	SET OPTIND TO +0 TO ACTIVE CDU DRIVE.
0534	REF	2 LAST 178	10,7042	0 6764 1		TC	OPTCOMM2	DO MODE AGREEMENT CHECK.
0543	REF	8 LAST 178	10,7043	4 0730 1	NOOPCOM	CS	WASOPSET	ENTERS HERE IF COMPUTER NOT COMMANDING.
0544	REF	8 LAST 178	10,7044	6 0640 0		AD	OSAMPTEM	SEE IF ANY CHANGES SINCE LAST LOOK.
0545	REF	148 LAST 177	10,7045	1 0000 0		CCS	A	
0546	REF	1	10,7046	0 7052 1		TC	NOOPCOM1	CHANGED.
0547			10,7047	37772 1	60MSRUPT	OCT	37772	UNUSED CCS BRANCH.
0548	REF	2 LAST 178	10,7050	0 7052 1		TC	NOOPCOM1	CHANGED.
0549	REF	7 LAST 178	10,7051	0 7074 0		TC	LVOPTSMP	NO CHANGE - NORMAL EXIT IN MANUAL.
0550	REF	9 LAST 178	10,7052	4 0730 1	NOOPCOM1	CS	WASOPSET	SEE IF MANUAL CDU-ZERO JUST REQUESTED.
0551	REF	8 LAST 177	10,7053	7 4503 1		MASK	BIT12	
0552	REF	9 LAST 178	10,7054	7 0640 1		MASK	OSAMPTEM	

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0553 REF 149 LAST 178 10,7055 1 0000 0
 0554 REF 1 10,7056 0 7360 0
 A0555

CCS A
 TC MANOPTZ

CALL MANUAL OPTICS ZERO SUBROUTINE.
 (THIS RECONCILES OPTICS-ZERO C-RELAY).

R0556 WE USED TO TEST HERE TO SEE IF THE SXT-ON SWITCH HAS CHANGED.
 R0557 SINCE IN BLOCK 50 - 100 IT IS ALWAYS ON, WE DON'T NOW.

0562 REF 7 LAST 168 10,7057 3 4505 0 RECONTRK CAF BIT10
 0563 REF 10 LAST 178 10,7060 7 0640 1 MASK OSAMPTM
 0564 REF 150 LAST 179 10,7061 1 0000 0 CCS A
 0565 REF 4 LAST 170 10,7062 3 4515 1 CAF BIT2
 0566 REF 10 LAST 165 10,7063 6 4500 0 AD BIT15
 0567 REF 37 LAST 177 10,7064 3 0724 0 XCH DSPTAB +12D
 0568 REF 1 10,7065 7 7254 1 MASK OCT37775
 0569 REF 38 LAST 179 10,7066 6 0724 0 AD DSPTAB +12D
 0570 REF 39 LAST 179 10,7067 5 0724 0 TS DSPTAB +12D

RECONCILE TRKR-ON C-RELAY.

TURN ON TRKR-ON C-RELAY.

CHANGE BITS 2 AND 15.

0571 REF 11 LAST 179 10,7070 3 0640 0 XCH OSAMPTM
 0572 REF 10 LAST 178 10,7071 5 0730 0 TS WASOPSET
 0573 REF 1 10,7072 0 2743 0 TC SETZLIT
 0574 REF 3 LAST 178 10,7073 0 7076 1 TC NOOPRSET

SET WASOPSET AND CALL SETZLIT TO
 SET ZERO-ENCODER LIGHT.

0575 REF 12 LAST 179 10,7074 3 0640 0 LVOPTSMP XCH OSAMPTM
 0576 REF 11 LAST 179 10,7075 5 0730 0 TS WASOPSET

0577 10,7076 NOOPRSET EQUALS

DONT RESET WASOPSET.

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P0578 KSAMP ENTERED EVERY 120 MS DURING T4RUPT. SAMPLES STATUS OF
 R0579 ----- IMU MODE SWITCHES.
 R0580 SETS C(WASKSET)=C(DESKSET) FOR SUCCESSFUL COMP. COMM.
 R0581 =+0 FOR WAITING(START-UP, CONTACT BOUNCE)
 R0582 =-X FOR ASTRONAUT COMM. IGNORE
 R0583 =-0 FOR SYSTEM FAILURE

0584	REF	9 LAST 166	10,7076	1 0727 1	KSAMP	CCS	WASKSET	TEST FOR IGNORE
0585			10,7077	0 7102 0		TC	+3	
0586			10,7100	0 7102 0		TC	+2	
0587	REF	1	10,7101	0 2262 0		TC	ENDKSAMP	
0588	REF	2 LAST 149	10,7102	1 0731 0		CCS	DESKSET	C(DESKSET)=DESIRED K RELAY SETTING
0589	REF	1	10,7103	0 7250 1		TC	KSAMP1	=+0 FOR COMPUTER NOT COMM.
0590	REF	1	10,7104	0 7117 1		TC	KSAMP4	-DESIRED K SETTING FOR MAN 0.
0591	REF	3 LAST 123	10,7105	3 4516 1		CAF	BIT1	ENTERS HERE TO BE SURE MANUAL CDU ZERO
0592	REF	3 LAST 176	10,7106	7 0637 1		MASK	KSAMPTM	LASTS AT LEAST 30 SEC.
0593	REF	10 LAST 180	10,7107	6 0727 0		AD	WASKSET	ALARM IF CDU-ZERO SWITCH CHANGED STATE.
0594	REF	4 LAST 180	10,7110	7 4516 0		MASK	BIT1	
0595	REF	151 LAST 179	10,7111	1 0000 0		CCS	A	
0596			10,7112	0 7114 1		TC	+2	
0597	REF	1	10,7113	0 7260 1		TC	LVKSAMP	
0598	REF	6 LAST 178	10,7114	0 3007 0		TC	ALARM	
0599			10,7115	00201 1		OCT	00201	CDU NOT ZEROED PROPERLY.
0600	REF	2 LAST 180	10,7116	0 7260 1		TC	LVKSAMP	
0601	REF	4 LAST 180	10,7117	3 0637 0	KSAMP4	XCH	KSAMPTM	NO COMPUTER COMMAND.
0602	REF	11 LAST 180	10,7120	3 0727 0		XCH	WASKSET	CURRENT STATUS TO WASKSET
0603	REF	5 LAST 180	10,7121	5 0637 0		TS	KSAMPTM	(FOR EVENTUAL USE BY MANUAL ZERO TEST).
0604	REF	152 LAST 180	10,7122	4 0000 0		CS	A	
0605	REF	12 LAST 180	10,7123	6 0727 0		AD	WASKSET	
0606	REF	153 LAST 180	10,7124	1 0000 0		CCS	A	
0607	REF	1	10,7125	0 7211 1		TC	KSAMP2B	SEE IF TRNSW JUST ON AND IS ONLY CHANGE.
0608			10,7126	37776 0	20MSRUPT	OCT	37776	UNUSED CCS BRANCH - USED TO CAUSE 0 OUTO
0609	REF	1	10,7127	0 7131 0		TC	KSAMP2	
0610	REF	2 LAST 180	10,7130	0 2262 0		TC	ENDKSAMP	EXIT ON NO CHANGE IN MODE.
0611	REF	4 LAST 166	10,7131	3 4511 0	KSAMP2	CAF	BIT6	CHANGE IN MODE
0612	REF	13 LAST 180	10,7132	7 0727 1		MASK	WASKSET	
0613	REF	154 LAST 180	10,7133	1 0000 0		CCS	A	IS TRNSW ON MANUAL
0614	REF	1	10,7134	0 7217 1		TC	TRNSWON	SEE IF START-UP OR PILOTS BUTTON ON.
0615	REF	14 LAST 180	10,7135	4 0727 1		CS	WASKSET	TEST FOR START UP SEQUENCE
0616	REF	1	10,7136	7 7336 1		MASK	FINE+CRS	START-UP=FINE AND COARSE IN MANUAL.
0617	REF	155 LAST 180	10,7137	1 0000 0		CCS	A	
0618	REF	1	10,7140	0 7145 0		TC	MANZTEST	

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0619	REF	1		10,7141	3 6762 1	SETCOARS	CAF	OFFMASK	
0620	REF	40 LAST 179		10,7142	7 0723 0		MASK	DSPTAB +11D	
0621	REF	1		10,7143	6 4656 0		AD	OCT40002	
0622	REF	1		10,7144	0 7206 1		TC	SETC +3	
0623	REF	6 LAST 180		10,7145	4 0637 1	MANZTEST	CS	KSAMPTM	SEE IF MANUAL ZERO SWITCH JUST ON.
0624	REF	5 LAST 180		10,7146	7 4516 0		MASK	BIT1	
0625	REF	15 LAST 180		10,7147	7 0727 1		MASK	WASKSET	
0626	REF	156 LAST 180		10,7150	1 0000 0		CCS	A	
0627	REF	1		10,7151	0 7337 1		TC	MANCDU	MANUAL IMU CDU ZERO JUST REQUESTED.
0628	REF	7 LAST 181		10,7152	4 0637 1		CS	KSAMPTM	IF PREVIOUS MODE WAS COARSE ALIGN,
0629	REF	5 LAST 179		10,7153	7 4515 0		MASK	BIT2	DISABLE IMU FAIL FOR THE NEXT 5 SECS.
0630	REF	157 LAST 181		10,7154	1 0000 0		CCS	A	
0631	REF	1		10,7155	0 7165 1		TC	PRERECON	
0632	REF	8 LAST 168		10,7156	4 4513 0		CS	BIT4	
0633	REF	19 LAST 169		10,7157	7 0726 0		MASK	OLDERR	
0634	REF	9 LAST 181		10,7160	6 4513 1		AD	BIT4	
0635	REF	20 LAST 181		10,7161	5 0726 1		TS	OLDERR	
0636	REF	8 LAST 179		10,7162	3 4505 0		CAF	BIT10	
0637	REF	6 LAST 141		10,7163	0 2173 0		TC	WAITLIST	
0638	REF	2 LAST 141		10,7164	30201 1		CADR	IFAILOK	
0639	REF	2 LAST 181		10,7165	3 6762 1	PRERECON	CAF	OFFMASK	MANUAL MODE CHANGE
0640	REF	41 LAST 181		10,7166	7 0723 0		MASK	DSPTAB +11D	SO THE C-RELAYS MUST BE UPDATED.
0641	REF	11 LAST 179		10,7167	6 4500 0		AD	BIT15	ALL ARE TURNED OFF AND THE RIGHT ONES
0642	REF	42 LAST 181		10,7170	5 0723 1		TS	DSPTAB +11D	ARE TURNED ON BY SCANNING IN3.
0643	REF	16 LAST 181		10,7171	4 0727 1		CS	WASKSET	UPDATE C-RELAYS SO THEY AGREE WITH THE
0644	REF	23 LAST 176		10,7172	5 0034 0		TS	OVCTR	CURRENT MODE. THE SCAN IS FROM LEFT TO
0645	REF	4 LAST 149		10,7173	3 4475 0		CAF	SIX	RIGHT SO THE PILOTS BUTTON WORKS OK.
0646	REF	8 LAST 181		10,7174	5 0637 0	RECONCIL	TS	KSAMPTM	
0647	REF	24 LAST 181		10,7175	3 0034 0		XCH	OVCTR	NEXT BIT INTO POSITION.
0648				10,7176	6 0000 1	-BIT14+1	DOUBLE		
0649	REF	25 LAST 181		10,7177	5 0034 0		TS	OVCTR	
0650	REF	5 LAST 170		10,7200	7 4507 0		MASK	BIT8	
0651	REF	158 LAST 181		10,7201	1 0000 0		CCS	A	
0652	REF	1		10,7202	0 7243 0		TC	RECONLUP	LOOP TO EXAMINE NEXT BIT.
0653	REF	9 LAST 181		10,7203	2 0637 1	SETC	INDEX	KSAMPTM	
0654	REF	1		10,7204	3 7456 1		CAF	MODECHNG	NEW IMU C-RELAY SETTINGS.
0655	REF	43 LAST 181		10,7205	6 0723 1		AD	DSPTAB +11D	
0656	REF	44 LAST 181		10,7206	5 0723 1	+3	TS	DSPTAB +11D	
0657	REF	2 LAST 179		10,7207	0 2743 0		TC	SETZLIT	UPDATE THE ZERO ENCODER LAMP.
0658	REF	3 LAST 180		10,7210	0 2262 0		TC	ENDKSAMP	
0659	REF	1		10,7211	6 7214 1	KSAMP2B	AD	LOW5BAR	NO ERROR IF TRNSW JUST ON IS ONLY CHANGE

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0660	REF 159	LAST 181	10,7212	1 0000 0		CCS	A	
0661	REF 2	LAST 180	10,7213	0 7131 0		TC	KSAMP2	
0662			10,7214	77740 1	LOW5BAR	OCT	-37	
0663	REF 3	LAST 182	10,7215	0 7131 0		TC	KSAMP2	
0664	REF 4	LAST 181	10,7216	0 2262 0		TC	ENDKSAMP	ORIGINAL DIFFERENCE WAS JUST BIT 6.
0665	REF 1		10,7217	3 7335 0	TRNSWON	CAF	OCT14	
0666	REF 17	LAST 181	10,7220	7 0727 1		MASK	WASKSET	THE PILOTS BUTTON HAS CHANGED IF THERE
0667	REF 10	LAST 181	10,7221	6 0637 0		AD	KSAMPTM	HAS BEEN A CHANGE IN THE FINE ALIGN OR
0668	REF 2	LAST 182	10,7222	7 7335 1		MASK	OCT14	LOCK CDU BITS WITH THE SYSTEM IN ATTITUDE
0669	REF 160	LAST 182	10,7223	1 0000 0		CCS	A	CONTROL AS WELL.
0670			10,7224	0 7226 0		TC	+2	
0671	REF 1		10,7225	0 7233 1		TC	STARTCHK	NO - SEE IF SYSTEM CYCLING UP.
0672	REF 5	LAST 170	10,7226	3 4512 0		CAF	BIT5	
0673	REF 18	LAST 182	10,7227	7 0727 1		MASK	WASKSET	OK SO FAR ON PILOTS BUTTON. SEE IF
0674	REF 11	LAST 182	10,7230	7 0637 1		MASK	KSAMPTM	SYSTEM WAS AND IS IN ATTITUDE CONTROL.
0675	REF 161	LAST 182	10,7231	1 0000 0		CCS	A	
0676	REF 5	LAST 182	10,7232	0 2262 0		TC	ENDKSAMP	YES - LEAVE THE C-RELAYS IN ATTITUDE C.
0677	REF 12	LAST 182	10,7233	4 0637 1	STARTCHK	CS	KSAMPTM	
0678	REF 6	LAST 181	10,7234	7 4515 0		MASK	BIT2	SEE IF COARSE-ALIGN JUST ON. IF SO,
0679	REF 19	LAST 182	10,7235	7 0727 1		MASK	WASKSET	IF SO, THE SYSTEM IS CYCLING UP SO SET
0680	REF 162	LAST 182	10,7236	1 0000 0		CCS	A	THE C-RELAYS FOR COARSE ALIGN.
0681	REF 1		10,7237	0 7141 1		TC	SETCOARS	USUAL RECONCILING WOULDNT WORK HERE.
0682	REF 7	LAST 180	10,7240	0 3007 0	MODALARM	TC	ALARM	
0683			10,7241	00204 1		OCT	00204	UN-CALLED-FOR MODE CHANGE WITH COMPUTER
0684	REF 6	LAST 182	10,7242	0 2262 0		TC	ENDKSAMP	DOING MODE SWITCHING.
0685	REF 13	LAST 182	10,7243	1 0637 1	RECONLUP	CCS	KSAMPTM	
0686	REF 1		10,7244	0 7174 1		TC	RECONCIL	
0687	REF 8	LAST 182	10,7245	0 3007 0		TC	ALARM	NO IMU MODE INDICATION BITS GIVEN.
0688			10,7246	00203 0		OCT	00203	
0689	REF 7	LAST 182	10,7247	0 2262 0		TC	ENDKSAMP	
0690	REF 3	LAST 180	10,7250	4 0731 0	KSAMP1	CS	DESKSET	IS PRESENT MODE = COMMANDED
0691	REF 14	LAST 182	10,7251	6 0637 0		AD	KSAMPTM	
0692	REF 163	LAST 182	10,7252	1 0000 0		CCS	A	
0693	REF 1		10,7253	0 7263 1		TC	KSAMP1A	
0694			10,7254	37775 0	OCT37775	OCT	37775	UNUSED CCS BRANCH - USED TO SET TRKR-ON.
0695	REF 2	LAST 182	10,7255	0 7263 1		TC	KSAMP1A	
0696	REF 21	LAST 181	10,7256	1 0726 0		CCS	OLDERR	
0697	REF 1		10,7257	0 7331 1		TC	PIBUTOFF	TURN OFF THE PILOTS BUTTON BIT IF ON.
0698	REF 15	LAST 182	10,7260	3 0637 0	LVKSAMP	XCH	KSAMPTM	YES

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0699	REF	20	LAST	182	10,7261	5	0727	0	TS	WASKSET	
0700	REF	8	LAST	182	10,7262	0	2262	0	TC	ENDKSAMP	
0701	REF	6	LAST	181	10,7263	3	4516	1	KSAMP1A	CAF	BIT1
0702	REF	4	LAST	182	10,7264	7	0731	0		MASK	DESKSET
0703					10,7265	6	0000	1		DOUBLE	
0704	REF	16	LAST	182	10,7266	7	0637	1		MASK	KSAMPTM
0705	REF	164	LAST	182	10,7267	1	0000	0		CCS	A
0706	REF	1			10,7270	0	7322	0		TC	IMUSTART
											YES.
0707	REF	1			10,7271	3	7315	1		CAF	OCT60
0708	REF	5	LAST	183	10,7272	7	0731	0		MASK	DESKSET
0709	REF	17	LAST	183	10,7273	7	0637	1		MASK	KSAMPTM
0710					10,7274	4	0000	0		CDM	
0711	REF	2	LAST	183	10,7275	7	7315	0		MASK	OCT60
0712	REF	165	LAST	183	10,7276	1	0000	0		CCS	A
0713	REF	1			10,7277	0	7312	0		TC	KSAMP2A
0714	REF	3	LAST	182	10,7300	3	7335	0		CAF	OCT14
0715	REF	18	LAST	183	10,7301	7	0637	1		MASK	KSAMPTM
0716	REF	166	LAST	183	10,7302	1	0000	0		CCS	A
0717					10,7303	0	7305	0		TC	+2
0718	REF	2	LAST	183	10,7304	0	7312	0		TC	KSAMP2A
											SEE IF PILOTS BUTTON IS ON.
0719	REF	66	LAST	178	10,7305	4	4516	0		CS	ONE
0720	REF	22	LAST	182	10,7306	7	0726	0		MASK	OLDERR
0721	REF	67	LAST	183	10,7307	6	4516	1		AD	ONE
0722	REF	23	LAST	183	10,7310	5	0726	1		TS	OLDERR
0723	REF	3	LAST	180	10,7311	0	7260	1		TC	LVKSAMP
											CHECK ON PREVIOUS ACTIVITIES
0724	REF	21	LAST	183	10,7312	1	0727	1	KSAMP2A	CCS	WASKSET
0725	REF	1			10,7313	0	7317	0		TC	KSAMP3A
0726	REF	2	LAST	183	10,7314	0	7317	0		TC	KSAMP3A
0727					10,7315	00060	1		OCT60	OCT	60
0728	REF	9	LAST	183	10,7316	0	2262	0		TC	ENDKSAMP
											WAITING
											SYSTEM FAILURE
0729	REF	45	LAST	181	10,7317	1	0723	0	KSAMP3A	CCS	DSPTAB +11D
0730	REF	1			10,7320	0	7324	0		TC	SYSFAIL
0731	REF	2	LAST	183	10,7321	0	7324	0		TC	SYSFAIL
											SEE IF BANK IS TO BE CHANGED.
											NO - SYSTEM FAILURE.
0732	REF	1			10,7322	3	5501	0	IMUSTART	CAF	WAITFLAG
0733	REF	4	LAST	183	10,7323	0	7261	0		TC	LVKSAMP +1
											SET WAITING FLAG AND EXIT.
0734	REF	62	LAST	178	10,7324	4	5501	1	SYSFAIL	CS	ZERO
0735	REF	22	LAST	183	10,7325	5	0727	0		TS	WASKSET
0736	REF	9	LAST	182	10,7326	0	3007	0		TC	ALARM
0737					10,7327	00202	1			OCT	00202
0738	REF	10	LAST	183	10,7330	0	2262	0		TC	ENDKSAMP
											IMU SYSTEM FAILURE.
0739	REF	68	LAST	183	10,7331	4	4516	0	PIBUTOFF	CS	ONE
0740	REF	24	LAST	183	10,7332	7	0726	0		MASK	OLDERR
											BIT 1 OF OLDERR IS 1 IF THE PILOTS

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0741	REF	25	LAST	183	10,7333	5	0726	1	TS	OLDERR	BUTTON IS ON WHILE THE COMPUTERS COMMANDING.
0742	REF	5	LAST	183	10,7334	0	7260	1	TC	LVKSAMP	
0743					10,7335	00014	1	OCT14	OCT	14	
0744					10,7336	00012	1	FINE+CRS	OCT	12	
0745	REF	63	LAST	183		5501		WAITFLAG	EQUALS	ZERO	
0746	REF	4	LAST	173		2262		ENDKSAMP	EQUALS	LVDSRUPT	

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P0747 MANUAL CDU-ZERO PROGRAMS FOR IMU AND OPTICS CDUS.

0748	REF	19	LAST	165	10,7337	4	5503	0	MANCDU	CS	TWO	INITIATE MANUAL CDU ZERO MONITOR.
0749	REF	6	LAST	183	10,7340	5	0731	1		TS	DESKSET	(C-RELAYS WILL BE SET BY RECONCIL).
0750	REF	1			10,7341	3	7501	1		CAF	35SCNDS	
0751	REF	7	LAST	181	10,7342	0	2173	0		TC	WAITLIST	
0752	REF	1			10,7343		21350	1		CADR	MANIZD	
0753	REF	3	LAST	181	10,7344	3	6762	1		CAF	OFFMASK	USUAL RECONCILING WOULDNT WORK HERE
0754	REF	46	LAST	183	10,7345	7	0723	0		MASK	DSPTAB +11D	SINCE THE SCAN IS FROM LEFT TO RIGHT.
0755	REF	2	LAST	181	10,7346	6	7456	1		AD	MODECHNG	
0756	REF	2	LAST	181	10,7347	0	7206	1		TC	SETC +3	
R0757												WAITLIST TASK TO COMPLETE MANUAL ZERO. TURNS OFF LIGHT TO INDICATE COMPLETION.
0759	REF	1			10,7350	0	2731	0	MANIZD	TC	ZERDICTR	ZERO COUNTERS.
0760	REF	7	LAST	185	10,7351	1	0731	0		CCS	DESKSET	SET DESKSET TO +0 TO RESUME MANUAL
0761					10,7352	0	7356	0		TC	+4	MODE MONITORING UNLESS THE SYSTEM WAS
0762					10,7353	0	7356	0		TC	+3	PLACED UNDER COMPUTER CONTROL BY ANOTHER
0763	REF	64	LAST	184	10,7354	3	5501	0		CAF	ZERO	PROGRAM DURING THE 35 SEC. WAIT.
0764	REF	8	LAST	185	10,7355	5	0731	1		TS	DESKSET	
0765	REF	3	LAST	181	10,7356	0	2743	0		TC	SETZLIT	TURN OFF LIGHT IF APPROPRIATE.
0766	REF	5	LAST	141	10,7357	0	2256	1		TC	TASKOVER	

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P0767 MANUAL OPTICS ZEROING PROCEDURES.

0768	REF	1		10,7360	3 7502 1	MANOPTZ	CAF	60SCNDS	MANUAL OPTICS ZEROING ROUTINE.
0769	REF	8	LAST 185	10,7361	0 2173 0		TC	WAITLIST	CALL WAITLIST FOR 30 SEC. WAIT
0770	REF	1		10,7362	21372 1		CADR	MANOZD	
0771	REF	20	LAST 185	10,7363	4 5503 0		CS	TWO	SET ZEROING FLAG IN DESOPSET.
0772	REF	4	LAST 177	10,7364	5 0732 1		TS	DESOPSET	
0773	REF	2	LAST 111	10,7365	4 4664 0		CS	CSQ	RECONCILE ZERO OPTICS C RELAY
0774	REF	47	LAST 185	10,7366	7 0724 1		MASK	DSPTAB +12D	
0775	REF	3	LAST 186	10,7367	6 4664 1		AD	CSQ	
0776	REF	48	LAST 186	10,7370	5 0724 0		TS	DSPTAB +12D	
0777	REF	1		10,7371	0 7057 1		TC	RECONTRK	

R0778 WAITLIST TASK TO COMPLETE MANUAL OPTICS ZERO.

0779	REF	65	LAST 185	10,7372	3 5501 0	MANOZD	CAF	ZERO	
0780	REF	5	LAST 186	10,7373	5 0732 1		TS	DESOPSET	LEAVE MANUAL ZERO MONITOR
0781	REF	1		10,7374	0 2671 0		TC	ZEROCTR +1	SET OPTICS COUNTERS.
0782	REF	4	LAST 185	10,7375	0 2743 0		TC	SETZLIT	TURN OFF LIGHT (POSSIBLY) AS SIGNAL.
0783	REF	6	LAST 185	10,7376	0 2256 1		TC	TASKOVER	

L 001 T4RUPT OUTPUT CONTROL PROGRAMS

USER'S OWN PAGE NO. 29

P0784 PROCEDURE TO TURN OFF AN OUTCR WHOSE RESET PULSE WAS INITIATED DURING THE FIRST OF TWO XCH OUT2 IN-

R0786 STRUCTIONS USED IN UPDATING THE CONTENTS OF OUT2. THE OCCURENCE OF THIS IS EXTREMELY RARE.

0788	REF	5	LAST	180	10,7377	7	4511	1	JACKPOT	MASK	BIT6	SEE WHICH FIELD TURNED OFF UNEXPECTEDLY.
0789	REF	167	LAST	183	10,7400	1	0000	0		CCS	A	
0790	REF	1			10,7401	3	7406	1		CAF	OCT00767	IMU - MAKE UP MASK OCT 00377 .
0791	REF	1			10,7402	6	7407	0		AD	OCT77407	OPTICS - MAKE UP MASK OCT 77407 .
0792	REF	9	LAST	175	10,7403	7	0012	0		MASK	OUT2	THE PROBLEM WILL NOT RECUR HERE SINCE
0793	REF	10	LAST	187	10,7404	5	0012	1		TS	OUT2	THIS IS WITHIN 26 MCT OF THE LAST PULSE.
0794	REF	112	LAST	178	10,7405	0	0001	0		TC	Q	
0795					10,7406		00767	1	OCT00767	OCT	00767	
0796					10,7407		77407	1	OCT77407	OCT	77407	

L 001 T4RUPT OUTPUT CONTROL PROGRAMS

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P0797 THE FOLLOWING PROGRAM TAKES A 25 COMPLEMENT DIFFERENCE BETWEEN THE ACTUAL CDU COUNTER AND THE DESIRED
 R0799 SETTING. THE AGC AD INSTRUCTION BY ITSELF CANNOT BE USED SINCE +0 = -0 THERE. TO COMPENSATE, IF THE SIGNS OF
 R0801 THE OPERANDS ARE DIFFERENT AND THE ROTATION NECESSARY TO NULL OUT THE ERROR PASSES THROUGH ZERO (NO OVERFLOW
 R0803 OCCURS IN DIFFERENCING THE DESIRED AND ACTUAL), A ONE WITH THE SIGN OF THE DESIRED ANGLE IS ADDED TO THE DIFFER-
 R0805 ENCE.

0806	REF	13	LAST	175	10,7410	5	0577	1	2SCOMDIF	TS	ITEMP1	NEGATIVE OF CDU COUNTER ARRIVES IN A.
0807	REF	113	LAST	187	10,7411	3	0001	0		XCH	Q	
0808	REF	1			10,7412	5	0574	1		TS	ITEMP3	
0809	REF	14	LAST	175	10,7413	4	0600	0		CS	ITEMP2	C(ITEMP2) = -THE APPROPRIATE DES. ANGLE.
0810	REF	14	LAST	188	10,7414	6	0577	1		AD	ITEMP1	
0811	REF	26	LAST	181	10,7415	5	0034	0		TS	OVCTR	
0812	REF	1			10,7416	0	7423	0		TC	2SCOM2	IF NO OVERFLOW, SEE IF +-1 MUST BE ADDED
0813	REF	168	LAST	187	10,7417	2	0000	0	UNCOROVF	INDEX	A	IF OVERFLOW, SIMPLY DO OVERFLOW UNCOR-
0814	REF	2	LAST	171	10,7420	3	4477	1		CAF	LIMITS	RECTION AND EXIT.
0815	REF	27	LAST	188	10,7421	6	0034	0		AD	OVCTR	
0816	REF	2	LAST	188	10,7422	0	0574	1		TC	ITEMP3	
0817	REF	15	LAST	188	10,7423	1	0577	0	2SCOM2	CCS	ITEMP1	NO OVERFLOW - SEE IF SIGNS OF INPUTS ARE
0818	REF	1			10,7424	0	7435	1		TC	EXAM2	DIFFERENT.
0819	REF	2	LAST	188	10,7425	0	7435	1		TC	EXAM2	
0820					10,7426	0	7427	1		TC	+1	
0821	REF	15	LAST	188	10,7427	1	0600	0		CCS	ITEMP2	
0822	REF	1			10,7430	0	7443	0		TC	INCEX-	ADD -1 AND EXIT HERE.
0823	REF	2	LAST	188	10,7431	0	7443	0		TC	INCEX-	
0824					10,7432	0	7433	1		TC	+1	
0825	REF	28	LAST	188	10,7433	3	0034	0	DIFEX	XCH	OVCTR	ORIGINAL DIFFERENCE IS OK IF SIGNS SAME.
0826	REF	3	LAST	188	10,7434	0	0574	1		TC	ITEMP3	
0827	REF	16	LAST	188	10,7435	1	0600	0	EXAM2	CCS	ITEMP2	
0828	REF	1			10,7436	0	7433	1		TC	DIFEX	SIGNS SAME HERE.
0829	REF	2	LAST	188	10,7437	0	7433	1		TC	DIFEX	
0830					10,7440	0	7441	1		TC	+1	ADD +1 TO DIFFERENCE HERE.
0831	REF	69	LAST	183	10,7441	3	4516	1		CAF	ONE	
0832					10,7442	0	7444	1		TC	+2	
0833	REF	70	LAST	188	10,7443	4	4516	0	INCEX-	CS	ONE	
0834	REF	29	LAST	188	10,7444	6	0034	0		AD	OVCTR	
0835	REF	30	LAST	188	10,7445	5	0034	0		TS	OVCTR	
0836	REF	4	LAST	188	10,7446	0	0574	1		TC	ITEMP3	NORMAL TRAIN OF EVENTS.
0837	REF	1			10,7447	0	7417	1		TC	UNCOROVF	THIS ONLY HAPPENS AT 180 DEGREES.

L 001 T4RUPT OUTPUT CONTROL PROGRAMS

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P0838 OUTCTR SETTINGS FOR OUT2, AND C-RELAY SETTING CONSTANTS FOR IMU MODES.

0840		10,7450	50400 0	CDUCODES	OCT	50400	-Z CDU
0841		10,7451	51000 0		OCT	51000	-Y CDU
0842		10,7452	52000 0		OCT	52000	-X CDU
0843		10,7453	32000 0		OCT	32000	+X CDU
0844		10,7454	31000 0		OCT	31000	+Y CDU
0845		10,7455	30400 0		OCT	30400	+Z CDU
0846		10,7456	40011 0	MODECHNG	OCT	40011	(THIS CONSTANT IS NEVER USED BY RECONCIL
0847		10,7457	00002 0		OCT	00002	BUT ONLY BY THE MANUAL ZEROING PROG.)
0848		10,7460	00004 0		OCT	00004	
0849		10,7461	00010 0		OCT	00010	
0850		10,7462	01000 0		OCT	01000	
0851		10,7463	00000 1		OCT	00000	(TRANSFER SWITCH - NOT USED).
0852		10,7464	02000 0		OCT	02000	

R0853 ZERO-ENCODER LIGHT NOT COVERED HERE.

0854		10,7465	00377 1	LOW8	OCT	377	
0855	REF 2 LAST 163		10,7465	OUT2MASK	EQUALS	LOW8	
0856		10,7466	77407 1	OPTMASK	OCT	77407	COMPLEMENT OF OUTCR2 ACTIVITY BITS.
0857		10,7467	44400 0		OCT	44400	-Z GYRO
0858		10,7470	45000 0		OCT	45000	-Y GYRO
0859		10,7471	46000 0		OCT	46000	-X GYRO.
0860		10,7472	00220 1	OPTCODES	OCT	00220	-Y OPTICS CDU.
0861		10,7473	00240 1		OCT	00240	-X OPTICS CDU.
0862		10,7474	00140 1		OCT	00140	+X OPTICS CDU.
0863		10,7475	00120 1		OCT	00120	+Y OPTICS CDU.
0864		10,7476	26000 0		OCT	26000	+X GYRO
0865		10,7477	25000 0		OCT	25000	+Y GYRO
0866		10,7500	24400 0		OCT	24400	+Z GYRO.
0867		10,7501	06654 0	35SCNDS	DEC	35. E 2	FOR MANUAL IMUCDU ZEROING.
0868		10,7502	13560 0	60SCNDS	DEC	60. E 2	FOR MANUAL OPTICS ZEROING.
0869		10,7503	06022 1	NWMASK	OCT	06022	IMU, PIPA, RESTART FAIL AND CURTAINS.
0870	REF 4 LAST 168		2261	HI5	EQUALS	BANKMASK	

L MODE SWITCHING AND MARK ROUTINES

USER'S OWN PAGE NO. 1

R0001 THE FOLLOWING SET OF PROGRAMS ARE USED TO SELECT THE VARIOUS MODES OF THE IMU AND OPTICS. THE FOLLOWING
R0003 MODES ARE POSSIBLE:

R0004 IMUZERO ZEROS IMU CDUS.
R0005 IMUCOARS COARSE ALIGNS IMU.
R0006 IMURECOR RETURNS IMU FROM FINE ALIGN TO COARSE ALIGN
R0007 IMUFINE PREPARES TO PULSE TORQUE THE GYROS.
R0008 IMUFINNW SWITCHES TO FINE WITH NO DELAY FOR IRIG CENTERING-DONT ENTER FROM COARSE ALIGN MODE.
R0010 IMUATTC USE IMU FOR S/C ATTITUDE CONTROL.
R0011 IMUREENT USE IMU FOR ROLL RE-ENTRY.
R0012 IMULOCK LOCKS IMU CDUS.

R0013 IMUFINIS(**)RELEASES IMU
R0014 IMUSTALL(*) IMU MODE IDLING AND ERROR CHECKING.

R0015 OPTZERO ZERO OPTICS CDUS.
R0016 OPTCOARS DUMMY OPTICS COARSE-ALIGN MODE.
R0017 OPTTRKON OPTICS TRACKER ON.

R0018 SCTMARK REQUEST N SCANNING TELESCOPE MARKS.
R0019 SXTMARK REQUEST N SEXTANT MARKS.
R0020 MKRELEAS(**)RELEASE MARK SYSTEM.

R0021 OPTFINIS(**)RELEASE OPTICS.
R0022 OPTSTALL(*) OPTICS MODE-IDLING AND ERROR CHECKING.

R0023 OPTICS AND IMU MODE ROUTINES MAY BE USED CONCURRENTLY.

R0024 IN ADDITION, A ROUTINE WHICH INCREMENTS ANY DESIRED 2S COMPLEMENT ANGLE BY AN INPUT AMOUNT IS
R0026 INCLUDED (CDUINC).

R0027 CALLING SEQUENCE IS AS FOLLOWS:

R0028 L-1 CAF NO.MARKS (FOR SCTMARK AND SXTMARK ONLY).
R0029 L TC BANKCALL
R0030 L+1 CADR (SUBRO) ANY OF THE 14 MODE ROUTINES OR CDUINC.

R0031 (*) THE STALL ROUTINES ARE CALLED TO TERMINATE ANY MODE REQUEST. THE REQUESTING JOB IS STALLED UNTIL
R0033 THE MODE-SWITCHING IS COMPLETE (WITH VAC-AREA PROTECTED) AND RETURN IS TO L+2 IF UNSUCCESSFUL AND L+3 IF THE
R0035 DESIRED MODE WAS SUCCESSFULLY ACHIEVED.

R0036 (**) NO STALL ROUTINE NECESSARY IN CONJUNCTION WITH THIS REQUEST.

L MODE SWITCHING AND MARK ROUTINES

USER'S OWN PAGE NO. 2

P0038 SPECIAL DP TIME COUNTER READING ROUTINE.

0039					2676		BANK	1	
0040					2676	2 0017 0	READTIME	INHINT	ENTRY IF UNDER EXECUTIVE.
0041	REF	2	LAST	156	2677	4 0035 0	CS	TIME2	ENTRY IF IN INTERRUPT.
0042	REF	3	LAST	138	2700	5 0572 1	TS	RUPTSTOR	
0043	REF	4	LAST	156	2701	4 0036 0	CS	TIME1	
0044	REF	4	LAST	191	2702	5 0573 0	TS	RUPTSTOR +1	
0045	REF	169	LAST	188	2703	1 0000 0	CCS	A	IF MINOR PART ZERO, MAJOR PART COULD
0046	REF	114	LAST	188	2704	0 0001 0	TC	Q	
0047	REF	170	LAST	191	2705	1 0000 0	CCS	A	
0048	REF	115	LAST	191	2706	0 0001 0	TC	Q	
0049	REF	3	LAST	191	2707	4 0035 0	CS	TIME2	UP, SO READ IT AGIN.
0050	REF	5	LAST	191	2710	5 0572 1	TS	RUPTSTOR	
0051	REF	116	LAST	191	2711	0 0001 0	TC	Q	

R0052 ROUTINE TO READ FINE TIME IN IN2 EVEN IF IT CHANGES AS ITS BEING READ. CALL IN INHINT.

0054	REF	8	LAST	170	2712	3 0006 1	FINETIME	XCH	IN2	MAY BE CALLED UNDER EXEC OR RUPT.
0055	REF	9	LAST	191	2713	3 0006 1		XCH	IN2	
0056	REF	1			2714	7 2356 1		MASK	FINEMASK	NOTE THAT THE OR OF TWO STATES A AND B
0057	REF	16	LAST	188	2715	5 0577 1		TS	ITEMP1	IS NOT LESS THAN EITHER A OR B.
0058	REF	10	LAST	191	2716	3 0006 1		XCH	IN2	
0059	REF	2	LAST	191	2717	7 2356 1		MASK	FINEMASK	
0060	REF	17	LAST	188	2720	5 0600 1		TS	ITEMP2	
0061					2721	4 0000 0		COM		SELECT THE MINIMUM OF THE LAST TWO
0062	REF	17	LAST	191	2722	6 0577 1		AD	ITEMP1	STATES READ.
0063	REF	171	LAST	191	2723	1 0000 0		CCS	A	
0064	REF	18	LAST	191	2724	3 0600 1		XCH	ITEMP2	
0065	REF	117	LAST	191	2725	0 0001 0		TC	Q	
0066					2726	3 0000 1		NOOP		
0067	REF	18	LAST	191	2727	3 0577 1		XCH	ITEMP1	
0068	REF	118	LAST	191	2730	0 0001 0		TC	Q	

R0069 SUBROUTINE TO ZERO IMU CDU COUNTERS.

0070	REF	66	LAST	186	2731	3 5501 0	ZEROICTR	CAF	ZERO	USED BY AUTOMATIC AND MANUAL ZEROING
0071	REF	3	LAST	162	2732	5 0047 1		TS	CDUX	ROUTINES.
0072	REF	2	LAST	156	2733	5 0050 1		TS	CDUY	
0073	REF	2	LAST	156	2734	5 0051 0		TS	CDUZ	
0074	REF	119	LAST	191	2735	0 0001 0		TC	Q	

0075	REF	6	LAST	191	2736	4 0572 0	LODSAMPT	CS	RUPTSTOR	TIME IS SNATCHED IN RUPT FOR NOUN 65
0076	REF	1			2737	3 0643 0		XCH	SAMPTIME	
0077	REF	7	LAST	191	2740	4 0573 1		CS	RUPTSTOR +1	
0078	REF	2	LAST	191	2741	3 0644 1		XCH	SAMPTIME +1	
0079	REF	120	LAST	191	2742	0 0001 0		TC	Q	

L MODE SWITCHING AND MARK ROUTINES

USER'S OWN PAGE NO. 3

P0080 SETZLIT SETS THE ZERO ENCODER LAMP ACCORDING TO THE DESIRED-MODE REGISTERS DESKSET AND DESOPSET.

0082	REF	121	LAST	191	2743	3	0001	0	SETZLIT	XCH	Q	
0083	REF	19	LAST	191	2744	5	0577	1		TS	ITEMP1	
0084	REF	9	LAST	185	2745	1	0731	0		CCS	DESKSET	
0085					2746	0	2752	0		TC	+4	COMPUTER COMMANDING-MAY BE ZEROING.
0086	REF	1			2747	0	2756	1		TC	OPTZTEST	NOT MANUAL ZERO.
0087	REF	1			2750	0	2773	0	TURNONZ	TC	ZLITON	MANUAL ZEROING MODE.
0088	REF	20	LAST	192	2751	0	0577	1		TC	ITEMP1	
0089	REF	71	LAST	188	2752	6	4516	1	+4	AD	ONE	
0090	REF	7	LAST	183	2753	7	4516	0		MASK	BIT1	
0091	REF	172	LAST	191	2754	1	0000	0		CCS	A	
0092	REF	1			2755	0	2750	1		TC	TURNONZ	COMPUTER COMMANDING ZERO-ENCODER
0093	REF	6	LAST	186	2756	1	0732	0	OPTZTEST	CCS	DESOPSET	
0094					2757	0	2762	0		TC	+3	MAY BE COMMANDING OPTICS ZERO.
0095	REF	1			2760	0	2766	1		TC	ZLITOFF	NOT MANUAL ZERO-TURN LIGHT OFF.
0096	REF	2	LAST	192	2761	0	2750	1		TC	TURNONZ	MANUAL OPTICS
0097	REF	72	LAST	192	2762	6	4516	1	+3	AD	ONE	
0098	REF	9	LAST	178	2763	7	4503	1		MASK	BIT12	
0099	REF	173	LAST	192	2764	1	0000	0		CCS	A	
0100	REF	3	LAST	192	2765	0	2750	1		TC	TURNONZ	
0101	REF	1			2766	4	5070	1	ZLITOFF	CS	ZLITBITS	TURN OFF ZERO ENCODER LAMP.
0102	REF	49	LAST	186	2767	7	0723	0		MASK	DSPTAB +11D	
0103	REF	12	LAST	181	2770	6	4500	0		AD	BIT15	
0104	REF	50	LAST	192	2771	5	0723	1		TS	DSPTAB +11D	
0105	REF	21	LAST	192	2772	0	0577	1		TC	ITEMP1	
0106	REF	2	LAST	192	2773	4	5070	1	ZLITON	CS	ZLITBITS	TURN ON ZERO-ENCODER LAMP.
0107	REF	51	LAST	192	2774	7	0723	0		MASK	DSPTAB +11D	
0108	REF	3	LAST	192	2775	6	5070	0		AD	ZLITBITS	
0109	REF	52	LAST	192	2776	5	0723	1		TS	DSPTAB +11D	
0110	REF	122	LAST	192	2777	0	0001	0		TC	Q	
0111	REF	1					5070		ZLITBITS EQUALS OCT40020			CS CYR IN DMP.

L MODE SWITCHING AND MARK ROUTINES

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P0113 IMU ZEROING ROUTINE.

0114				14,6000		SETLOC 30000	
0115	REF	73 LAST 192	14,6000	4 4516 0	IMUZERO	CS	ONE
0116	REF	9 LAST 163	14,6001	5 0677 1		TS	CDUIND
							DISABLE CDU DRIVE BY SETTING CDUIND NEGATIVE.
0117	REF	1	14,6002	0 6245 1		TC	SETKANDC
0118			14,6003	00051 0		OCT	00051
0119			14,6004	40011 0		OCT	40011
0120	REF	2 LAST 192	14,6005	0 2773 0		TC	ZLITON
							GO TO SUBROUTINE TO SWITCH C RELAYS = C(DESKSET)=COMP CONT+ZERO+FINE = C SETTING FOR FINE + ZERO TURN ON ENCODER ZEROING LAMP
0121	REF	10 LAST 181	14,6006	4 4513 0		CS	BIT4
0122	REF	26 LAST 184	14,6007	7 0726 0		MASK	OLDERR
0123	REF	11 LAST 193	14,6010	6 4513 1		AD	BIT4
0124	REF	27 LAST 193	14,6011	5 0726 1		TS	OLDERR
0125	REF	9 LAST 181	14,6012	3 4505 0		CAF	BIT10
0126	REF	9 LAST 186	14,6013	0 2173 0		TC	WAITLIST
0127	REF	3 LAST 181	14,6014	30201 1		CADR	IFAILOK
							DISABLE IMU FAIL FOR 5 SEC IN CASE WE JUST CAME OUT OF COARSE ALIGN.
0128	REF	1	14,6015	3 6077 1		CAF	35SECS
0129	REF	10 LAST 193	14,6016	0 2173 0		TC	WAITLIST
0130	REF	1	14,6017	30022 1		CADR	IMUZEROD
0131			14,6020	2 0016 1	MODEEXIT	RELINT	
0132	REF	3 LAST 138	14,6021	0 5702 1		TC	SWRETURN
							SET A WAITLIST CALL FOR 35 SECONDS SO THOSE SHAFTS WILL HAVE TIME TO GET THERE. GENERAL EXIT FROM MODE SWITCH PROGS WHICH LEAVES VIA SWCALL EXIT
0133	REF	2 LAST 185	14,6022	0 2731 0	IMUZEROD	TC	ZEROICTR
							GO AND ZERO X, Y, AND Z COUNTERS
0134	REF	1	14,6023	0 6070 0		TC	KCHECK
0135	REF	2 LAST 193	14,6024	0 6246 1	MOREZERO	TC	SETKANDC +1
0136			14,6025	00050 1		OCT	00050
0137			14,6026	40010 1		OCT	40010
0138	REF	1	14,6027	3 6101 1		CAF	10SECS
0139	REF	11 LAST 193	14,6030	0 2173 0		TC	WAITLIST
0140	REF	1	14,6031	30033 1		CADR	ZEROATTC
0141	REF	7 LAST 186	14,6032	0 2256 1		TC	TASKOVER
							WE WILL GO INTO ATTITUDE CONTROL NEXT.
0142	REF	2 LAST 193	14,6033	0 6070 0	ZEROATTC	TC	KCHECK
0143	REF	3 LAST 193	14,6034	0 6246 1		TC	SETKANDC +1
0144			14,6035	00060 1		OCT	00060
0145			14,6036	41000 1		OCT	41000
0146	REF	1	14,6037	3 6103 0		CAF	320MS
0147	REF	12 LAST 193	14,6040	0 2173 0		TC	WAITLIST
0148	REF	1	14,6041	30043 0		CADR	ZERODRVE
0149	REF	8 LAST 193	14,6042	0 2256 1		TC	TASKOVER
							USUAL SYSTEM CHECK. COMMAND ATTITUDE CONTROL (WITHOUT ATTC LAMP LIT) SO THAT WE CAN DRIVE THE CDUS (LIGHT ON AFTER ALL) AWAY FROM FALSE NUL
							WAIT FOR MODE SWITCH BEFORE ENABLING CDU DRIVE IN T4RUPT.

L MODE SWITCHING AND MARK ROUTINES

USER'S OWN PAGE NO. 5

0150	REF	3	LAST	193	14,6043	0	6070	0	ZERODRVE	TC	KCHECK	VERIFY SWITCH TO ATTITUDE CONTROL.
0151	REF	3	LAST	85	14,6044	3	4502	1		CAF	QUARTER	WE WILL DRIVE THE CDUS TOWARD 45 DEGREES
0152	REF	5	LAST	162	14,6045	5	0700	0		TS	THETAD	FOR 2SECS (ABOUT 10 DEGREES OF MOVEMENT
0153	REF	6	LAST	194	14,6046	5	0701	1		TS	THETAD +1	AT MOST). THIS WILL DRIVE ANY CDUS OFF
0154	REF	7	LAST	194	14,6047	5	0702	1		TS	THETAD +2	FALSE NULLS WITHOUT MOVING THE PLATFORM
0155	REF	67	LAST	191	14,6050	3	5501	0		CAF	ZERO	
0156	REF	10	LAST	193	14,6051	5	0677	1		TS	CDUIND	CDU LOOPS ARE NOW ENABLED.
0157	REF	1			14,6052	3	6102	1		CAF	2SECS	
0158	REF	13	LAST	193	14,6053	0	2173	0		TC	WAITLIST	
0159	REF	1			14,6054		30056	1		CADR	REZFINE	GO BACK TO FINE ALIGN WHEN DONE.
0160	REF	9	LAST	193	14,6055	0	2256	1		TC	TASKOVER	
0161	REF	4	LAST	194	14,6056	0	6070	0	REZFINE	TC	KCHECK	VERIFY MODE SWITCH AS USUAL.
0162	REF	4	LAST	193	14,6057	0	6246	1		TC	SETKANDC +1	CALL FOR 20 SECONDS OF FINE ALIGN TO
0163					14,6060		00050	1		OCT	00050	ALLOW ENOUGH TIME FOR THE CDUS TO FIND
0164					14,6061		40010	1		OCT	40010	THE GIMBALS.
0165	REF	74	LAST	193	14,6062	4	4516	0		CS	ONE	
0166	REF	11	LAST	194	14,6063	5	0677	1		TS	CDUIND	CDU LOOPS NOW DISABLED.
0167	REF	1			14,6064	3	6100	0		CAF	20SECS	
0168	REF	14	LAST	194	14,6065	0	2173	0		TC	WAITLIST	
0169	REF	1			14,6066		30171	0		CADR	IMUFINE	CHECK FOR PRESENCE OF IMU OR CDU FAILS.
0170	REF	10	LAST	194	14,6067	0	2256	1		TC	TASKOVER	
0171	REF	23	LAST	183	14,6070	1	0727	1	KCHECK	CCS	WASKSET	RETURN TO CALLER IF SYSTEM OK - SET UP
0172	REF	123	LAST	192	14,6071	0	0001	0		TC	Q	ERROR RETURN AT ENDIMU OTHERWISE.
0173	REF	1			14,6072	0	6264	1		TC	ENDIMU	
0174	REF	124	LAST	194	14,6073	0	0001	0		TC	Q	
0175	REF	2	LAST	194	14,6074	0	6264	1		TC	ENDIMU	
0176					14,6075	21450	0	90SECS	DEC	90.00	E 2	
0177					14,6076	10624	0	45SECS	DEC	45.00	E 2	TIME FOR IMUCDU COARSE ALIGN.
0178					14,6077	06654	0	35SECS	DEC	35.00	E 2	TIME FOR IMUCDU ZERO ENCODER.
0179					14,6100	03720	1	20SECS	DEC	20.00	E 2	
0180					14,6101	01750	1	10SECS	DEC	10.00	E 2	
0181					14,6102	00310	0	2SECS	DEC	2.00	E 2	
0182					14,6103	00040	0	320MS	DEC	.32	E2	

L MODE SWITCHING AND MARK ROUTINES

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P0183 IMU COARSE ALIGN PROGRAM

0184	REF	5 LAST 194	14,6104	0 6245 1	IMUCOARS	TC	SETKANDC	SET DESIRED C AND K RELAY SETTINGS.
0185			14,6105	00042 1		OCT	00042	COMPUTER CONTROL + COARSE ALIGN.
0186			14,6106	40002 1		OCT	40002	C RELAY COARSE ALIGN.
0187	REF	5 LAST 186	14,6107	0 2743 0		TC	SETZLIT	SERVICE THE ZERO ENCODER LAMP
0188	REF	2 LAST 193	14,6110	3 6103 0		CAF	320MS	SET WAITLIST CALL FOR 320 M.S. TO
0189	REF	15 LAST 194	14,6111	0 2173 0		TC	WAITLIST	ACCOMMODATE CONTACT BOUNCE + T4RUPT LAG
0190	REF	1	14,6112	30125 1		CADR	BEGINCOM	
0191	REF	1	14,6113	0 6020 0		TC	MODEEXIT	
0192	REF	4 LAST 191	14,6114	4 0047 0	RECOARSD	CS	CDUX	GOING BACK INTO COARSE ALIGN FROM FINE
0193			14,6115	4 0000 0		COM		ALIGN. PUT CDU COUNTER VALUES INTO
0194	REF	8 LAST 194	14,6116	5 0700 0		TS	THETAD	DESIRED ANGLE REGISTERS AND ENABLE THE
0195	REF	3 LAST 191	14,6117	4 0050 0		CS	CDUY	T4RUPT CDU DRIVE.
0196			14,6120	4 0000 0		COM		
0197	REF	9 LAST 195	14,6121	5 0701 1		TS	THETAD +1	
0198	REF	3 LAST 191	14,6122	4 0051 1		CS	CDUZ	
0199			14,6123	4 0000 0		COM		
0200	REF	10 LAST 195	14,6124	5 0702 1		TS	THETAD +2	
0201	REF	5 LAST 194	14,6125	0 6070 0	BEGINCOM	TC	KCHECK	VERIFY CORRECTNESS OF PRESENT MODE.
0202	REF	68 LAST 194	14,6126	3 5501 0	STARTCRS	CAF	ZERO	ENABLE CDU LOOP CLOSURE
0203	REF	12 LAST 194	14,6127	5 0677 1		TS	CDUIND	
0204	REF	1	14,6130	3 6076 0		CAF	45SECS	
0205	REF	16 LAST 195	14,6131	0 2173 0		TC	WAITLIST	CDU LOOPS TO SETTLE
0206	REF	1	14,6132	30214 0		CADR	COARSDON	
0207	REF	11 LAST 194	14,6133	0 2256 1		TC	TASKOVER	

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L MODE SWITCHING AND MARK ROUTINES

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P0208 IMU FINE ALIGN PROGRAM

0209	REF	6	LAST	195	14,6134	0 6245 1	IMURECOR	TC	SETKANDC	GO INTO COARSE ALIGN FROM FINE ALIGN.
0210					14,6135	00042 1		OCT	00042	(SEE REMARKS ON RECOARSD FOR FURTHER
0211					14,6136	40002 1		OCT	40002	DETAILS).
0212	REF	3	LAST	195	14,6137	3 6103 0		CAF	320MS	USUAL CONTACT CLOSURE AND SAMPLE TIME
0213	REF	17	LAST	195	14,6140	0 2173 0		TC	WAITLIST	
0214	REF	1			14,6141	30114 0		CADR	RECOARSD	
0215	REF	1			14,6142	0 6160 0		TC	DISEXIT	DISABLE GYRO ACTIVITY.
0216	REF	7	LAST	196	14,6143	0 6245 1	IMUFINE	TC	SETKANDC	SET UP C RELAY PATTERN AND DESIRED K
0217					14,6144	00050 1		OCT	00050	DES K = COMPUTER CONTROL + FINE
0218					14,6145	40010 1		OCT	40010	C = FINE ALIGN
0219	REF	12	LAST	193	14,6146	4 4513 0		CS	BIT4	COMES THROUGH HERE AFTER EVERY COARSE ALIGN. SET BIT 4 OF OLDERR TO INHIBIT IMU FAIL FOR ANOTHER 5 SECONDS.
0220	REF	28	LAST	193	14,6147	7 0726 0		MASK	OLDERR	
0221	REF	13	LAST	196	14,6150	6 4513 1		AD	BIT4	
0222	REF	29	LAST	196	14,6151	5 0726 1		TS	OLDERR	
0223	REF	10	LAST	193	14,6152	3 4505 0		CAF	BIT10	
0224	REF	18	LAST	196	14,6153	0 2173 0		TC	WAITLIST	
0225	REF	4	LAST	193	14,6154	30201 1		CADR	IFAILOK	
0226	REF	1			14,6155	3 6075 0		CAF	90SECS	SET WAITLIST CALL FOR 90 SEC. TO ALLOW
0227	REF	19	LAST	196	14,6156	0 2173 0		TC	WAITLIST	GYROS TO RE-CENTER BEFORE IRIG PULSE
0228	REF	2	LAST	194	14,6157	30171 0		CADR	IMUFINED	TORQUING
0229	REF	75	LAST	194	14,6160	4 4516 0	DISEXIT	CS	ONE	DISABLE T4 IMU (CDU OR GYRO) ACTIVITY.
0230	REF	13	LAST	195	14,6161	5 0677 1		TS	CDUIND	
0231	REF	2	LAST	195	14,6162	0 6020 0		TC	MODEEXIT	
0232	REF	1			14,6163	0 6757 1	IMUFINNW	TC	TSTIMACT	
02325	REF	8	LAST	196	14,6164	0 6245 1		TC	SETKANDC	
0233					14,6165	00050 1		OCT	00050	
0234					14,6166	40010 1		OCT	40010	
0235	REF	4	LAST	196	14,6167	3 6103 0		CAF	320MS	
0236	REF	2	LAST	196	14,6170	0 6156 0		TC	DISEXIT -2	

L MODE SWITCHING AND MARK ROUTINES

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0237	REF	1		14,6171	0 3430 0	IMUFINED	TC	FLAG1DWN
02373				14,6172	02000 0		OCT	02000
02376	REF	3 LAST 194		14,6173	0 6264 1		TC	ENDIMU
0238	REF	10 LAST 192		14,6174	3 4503 0		CAF	BIT12
0239	REF	30 LAST 196		14,6175	7 0726 0		MASK	OLDERR
0240	REF	174 LAST 192		14,6176	1 0000 0		CCS	A
0241	REF	1		14,6177	0 6305 1		TC	FAILEND
0242	REF	1		14,6200	0 6314 1		TC	GOODEND
0243	REF	14 LAST 196		14,6201	4 4513 0	IFAILOK	CS	BIT4
0244	REF	31 LAST 197		14,6202	7 0726 0		MASK	OLDERR
0245	REF	32 LAST 197		14,6203	5 0726 1		TS	OLDERR
0246	REF	12 LAST 195		14,6204	0 2256 1		TC	TASKOVER

NO IMU FAILS, PLEASE.

ENABLE IMU FAIL 5 SECONDS AFTER COMING
OUT OF COARSE ALIGN.

OPTIND

L MODE SWITCHING AND MARK ROUTINES

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P0247 CDU LOCK PROGRAM

0248	REF	9 LAST 196	14,6205	0 6245 1	IMULOCK	TC	SETKANDC	SET APPROPRIATE K AND C CONFIGS.
0249			14,6206	00044 1		OCT	00044	
0250			14,6207	40004 1		OCT	40004	
0251	REF	5 LAST 196	14,6210	3 6103 0		CAF	320MS	
0252	REF	20 LAST 196	14,6211	0 2173 0		TC	WAITLIST	PLACE.
0253	REF	1	14,6212	30214 0		CADR	IMULOCKD	
0254	REF	3 LAST 196	14,6213	0 6160 0		TC	DISEXIT	
0255	REF	4 LAST 197	14,6214	0 6264 1	IMULOCKD	TC	ENDIMU	
0256	REF	2 LAST 197	14,6215	0 6314 1		TC	GOODEND	
0257	REF	2 LAST 198		14,6214	COARSDON	EQUALS	IMULOCKD	

L MODE SWITCHING AND MARK ROUTINES

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P0258 IMU RE-ENTRY AND ATTITUDE CONTROL PROGRAMS

0259	REF	2 LAST 196	14,6216	0 6757 1	IMUREENT	TC	TSTIMACT
02595	REF	10 LAST 198	14,6217	0 6245 1		TC	SETKANDC
0260			14,6220	00140 1		OCT	00140
0261			14,6221	42000 1		OCT	42000
0262	REF	1	14,6222	0 6227 0		TC	ENABEXIT

0263	REF	3 LAST 199	14,6223	0 6757 1	IMUATTC	TC	TSTIMACT
02635	REF	11 LAST 199	14,6224	0 6245 1		TC	SETKANDC
0264			14,6225	00060 1		OCT	00060
0265			14,6226	41000 1		OCT	41000

0266	REF	6 LAST 198	14,6227	3 6103 0	ENABEXIT	CAF	320MS
0267	REF	21 LAST 198	14,6230	0 2173 0		TC	WAITLIST
0268	REF	1	14,6231	30233 0		CADR	ENABLE
0269	REF	4 LAST 198	14,6232	0 6160 0		TC	DISEXIT

DISABLE POSSIBLE GYRO ACTIVITY.

0270	REF	2 LAST 197	14,6233	0 3430 0	ENABLE	TC	FLAG1DWN
02703			14,6234	02000 0		OCT	02000

02706	REF	5 LAST 198	14,6235	0 6264 1		TC	ENDIMU
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0271	REF	69 LAST 195	14,6236	3 5501 0		CAF	ZERO
0272	REF	14 LAST 196	14,6237	5 0677 1		TS	CDUIND
0273	REF	3 LAST 198	14,6240	0 6314 1		TC	GOODEND

ENABLE CDU LOOPS

A0274
A0275
A0276
A0277

NOTICE THAT NO INSPECTION OF CDU AND IMU
ERROR SIGNALS IS MADE SINCE IN THESE
MODES THE MAIN PROGRAM MUST CHECK THE
STATUS OF THESE SIGNALS PERIODICALLY.

R0278 IMUFINIS - TO BE CALLED AT THE END OF COMPUTER-CONTROLLED MODE SWITCHING. PLACES MODE SAMPLING INTO
R0280 MANUAL CONTROL, SWITCHES THE SYSTEM TO FINE ALIGN, AND DISABLES THE T4RUPT CDU DRIVE. NO CALL TO IMUSTALL IS
R0282 REQUIRED HERE.

0283	REF	12 LAST 199	14,6241	0 6245 1	IMUFINIS	TC	SETKANDC
0284			14,6242	00000 1		OCT	00000
0285			14,6243	40010 1		OCT	40010
0286	REF	5 LAST 199	14,6244	0 6160 0		TC	DISEXIT

0 MEANS COMPUTER IS NO LONGER IN CONTROL
FINE ALIGN C-RELAY CODE.

L MODE SWITCHING AND MARK ROUTINES

USER'S OWN PAGE NO. 11

P0287 SUBROUTINE USED BY MODE-SWITCHING PROGRAMS TO SET DESIRED K- AND C-RELAY SETTINGS.

0289		14,6245	2 0017 0	SETKANDC	INHINT	INHINT AND EXIT WITH INTERRUPT INHIBITED
0290	REF 125 LAST 194	14,6246	2 0001 1	INDEX	Q	
0291		14,6247	3 0000 1	CAF	0	
0292	REF 10 LAST 192	14,6250	5 0731 1	TS	DESKSET	DESIRED K-RELAY SETTING AS READ IN IN3.
0293	REF 1	14,6251	3 6260 0	CAF	OFFMSK	SET C-RELAYS FOR ZERO ENCODER, COARSE
0294	REF 53 LAST 192	14,6252	7 0723 0	MASK	DSPTAB +11D	ALIGN, FINE ALIGN, LOCK CDU, ROLL
0295	REF 126 LAST 200	14,6253	2 0001 1	INDEX	Q	RE-ENTRY, AND ATTITUDE CONTROL LAMP.
0296		14,6254	6 0001 0	AD	1	
0297	REF 54 LAST 200	14,6255	5 0723 1	TS	DSPTAB +11D	
0298	REF 127 LAST 200	14,6256	2 0001 1	INDEX	Q	
0299		14,6257	0 0002 0	TC	2	RETURN TO CALLER IN INHINT.
0300		14,6260	34760 1	OFFMSK	OCT 34760	

L MODE SWITCHING AND MARK ROUTINES

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P0301 WHEN A MODE-SWITCHING TASK IS DISPATCHED TO INDICATE THE END OF A MODE-SWITCH, ENDIMU (OR ENDOPT) IS
 R0303 CALLED TO WAKE UP ANY JOB IMUSTALL (OPTSTALL) MIGHT HAVE PUT TO SLEEP AND THEN CHECK WASKSET (WASOPSET) TO SEE
 R0305 THAT THE MODE-SWITCH WAS SUCCESSFUL.

0306	REF	21	LAST	186	14,6261	3	5503	1	ENDOPT	CAF	TWO	
0307	REF	14	LAST	175	14,6262	6	4476	0		AD	POSMAX	
0308	REF	31	LAST	188	14,6263	5	0034	0		TS	OVCTR	SKIP WITH C(A) = 1.
0309	REF	70	LAST	199	14,6264	3	5501	0	ENDIMU	CAF	ZERO	
0310	REF	5	LAST	175	14,6265	5	0640	0		TS	RUPTRG2	0 FOR IMU, 1 FOR OPTICS.
0311	REF	128	LAST	200	14,6266	3	0001	0		XCH	Q	
0312	REF	5	LAST	174	14,6267	5	0637	0		TS	RUPTRG1	
0313	REF	6	LAST	201	14,6270	2	0640	1		INDEX	RUPTRG2	
0314	REF	1			14,6271	1	0733	1		CCS	MODECADR	SEE IF IMUSTALL (OPTSTALL) PUT A JOB
0315					14,6272	0	6274	0		TC	+2	TO SLEEP.
0316	REF	1			14,6273	0	6300	1		TC	ENDMODE	+0 IF NOT.
0317	REF	76	LAST	196	14,6274	3	4516	1		CAF	ONE	SET PROPER MODECADR TO 1 TO INDICATE
0318	REF	7	LAST	201	14,6275	2	0640	1		INDEX	RUPTRG2	A JOB WAS AWAKENED.
0319	REF	2	LAST	201	14,6276	3	0733	0		XCH	MODECADR	
0320	REF	2	LAST	123	14,6277	0	2060	0		TC	JOBWAKE	
0321	REF	8	LAST	201	14,6300	2	0640	1	ENDMODE	INDEX	RUPTRG2	CHECK PROPER *WAS* REGISTER TO SEE IF
0322	REF	24	LAST	194	14,6301	1	0727	1		CCS	WASKSET	SWITCH WAS SUCCESSFUL.
0323	REF	6	LAST	201	14,6302	0	0637	0		TC	RUPTRG1	YES - RETURN FOR MORE CHECKING IF OK.
0324					14,6303	0	6305	1		TC	+2	FAILED - STILL WAITING TO SWITCH.
0325	REF	7	LAST	201	14,6304	0	0637	0		TC	RUPTRG1	MANUAL INHIBIT.
0326	REF	9	LAST	201	14,6305	2	0640	1	FAILEND	INDEX	RUPTRG2	COMES HERE TO SIGNAL ERROR RETURN FROM
0327	REF	3	LAST	201	14,6306	1	0733	1		CCS	MODECADR	MODE STALL ROUTINES.
0328					14,6307	0	6311	1		TC	+2	JOB WAS WAKENED EARLIER - EXIT W/O INCR.
0329					14,6310	4	0000	0		COM		NO WAKE-UP - SET MODECADR TO -0 FOR FAIL
0330	REF	10	LAST	201	14,6311	2	0640	1	LVENDMOD	INDEX	RUPTRG2	
0331	REF	4	LAST	201	14,6312	5	0733	0		TS	MODECADR	
0332	REF	13	LAST	197	14,6313	0	2256	1		TC	TASKOVER	
0333	REF	11	LAST	201	14,6314	2	0640	1	GOODEND	INDEX	RUPTRG2	COMES HERE TO SIGNAL A SUCCESSFUL SWITCH
0334	REF	5	LAST	201	14,6315	1	0733	1		CCS	MODECADR	
0335	REF	1			14,6316	0	6321	1		TC	BUMPJOB	JOB WAS AWAKENED - INCREMENT LOC.
0336	REF	77	LAST	201	14,6317	4	4516	0		CS	ONE	NO WAKE - SET MODECADR TO -1 TO INDICATE
0337	REF	1			14,6320	0	6311	1		TC	LVENDMOD	SUCCESS.
0338	REF	17	LAST	102	14,6321	2	0601	1	BUMPJOB	INDEX	LOCCTR	ARRIVES WITH C(A) = 0. LOCCTR SET TO
0339	REF	25	LAST	146	14,6322	3	0120	1		XCH	LOC	AWAKENED JOB REGISTERS.
0340	REF	5	LAST	153	14,6323	6	4335	0		AD	MINUS1	LOC IS NEGATIVE FOR BASIC JOBS.
0341	REF	18	LAST	201	14,6324	2	0601	1		INDEX	LOCCTR	
0342	REF	26	LAST	201	14,6325	3	0120	1		XCH	LOC	
0343	REF	2	LAST	201	14,6326	0	6311	1		TC	LVENDMOD	SET MODECADR TO +0 AND EXIT.

L MODE SWITCHING AND MARK ROUTINES

USER'S OWN PAGE NO. 13

P0344 WHEN A JOB WHICH REQUESTED A MODE SWITCH MUST IDLE UNTIL THE SWITCH IS COMPLETE, IT COMES TO IMUSTALL
 R0346 (OR OPTSTALL) TO WAIT FOR THE COMPLETION AND TO DO ERROR CHECKING. RETURN IS TO THE LOCATION IMMEDIATELY FOLLOW-
 R0348 ING THE CALLING SEQUENCE IF THE SWITCH WAS UNSUCCESSFUL, AND THE NEXT LOCATION IF IT WAS SUCCESSFUL. ANY
 R0350 IDLING IS DONE BY PUTTING THE JOB TO SLEEP, SO THAT A VAC AREA (IF USED) WOULD BE PRESERVED.

0352	REF	78	LAST	201	14,6327	3 4516 1	OPTSTALL	CAF	ONE	0 FOR IMU AND 1 FOR OPTICS AS USUAL.
0353					14,6330	0 6332 0		TC	+2	
0354	REF	71	LAST	201	14,6331	3 5501 0	IMUSTALL	CAF	ZERO	
0355					14,6332	2 0017 0		INHINT		ONE SUB-SYSTEM AT A TIME ONLY.
0356	REF	12	LAST	201	14,6333	5 0640 0		TS	RUPTREG2	
0357	REF	175	LAST	197	14,6334	2 0000 0		INDEX	A	
0358	REF	6	LAST	201	14,6335	1 0733 1		CCS	MODECADR	SEE IF MODE SWITCH IS COMPLETE.
0359	REF	1			14,6336	0 6357 0		TC	MODABORT	VERY ILL IF SOMEONE ALREADY WAITING.
0360	REF	1			14,6337	0 6352 0		TC	MODESLP	MODE SWITCH INCOMPLETE - PUT JOB TO REST
0361	REF	1			14,6340	0 6344 1		TC	MODEGOOD	-1 INDICATES A SUCCESSFULLY COMPLETED SW
0362	REF	13	LAST	202	14,6341	2 0640 1	MG2	INDEX	RUPTREG2	-0 MEANS FINISHED BUT FAILED.
0363	REF	7	LAST	202	14,6342	5 0733 0		TS	MODECADR	RESET TO +0.
0364	REF	3	LAST	196	14,6343	0 6020 0		TC	MODEEXIT	RELINT AND RETURN VIA SWCALL.
0365	REF	176	LAST	202	14,6344	1 0000 0	MODEGOOD	CCS	A	SEE THAT MODECADR WAS INDEED -1.
0366	REF	2	LAST	202	14,6345	0 6357 0		TC	MODABORT	VERY ILL IF SOMEONE ALREADY WAITING.
0367	REF	1			14,6346	3 0071 1		XCH	TEMQS	INCREMENT RETURN TO INDICATE SUCCESS.
0368	REF	79	LAST	202	14,6347	6 4516 1		AD	ONE	
0369	REF	2	LAST	202	14,6350	3 0071 1		XCH	TEMQS	BRING +0 BACK
0370	REF	1			14,6351	0 6341 1		TC	MG2	TO RESET MODECADR AND EXIT.
0371	REF	2	LAST	123	14,6352	0 5706 0	MODESLP	TC	MAKECADR	MAKE CADR FROM SWCALL RETUN ADDRESS.
0372	REF	82	LAST	123	14,6353	3 0062 0		XCH	ADDRWD	
0373	REF	14	LAST	202	14,6354	2 0640 1		INDEX	RUPTREG2	
0374	REF	8	LAST	202	14,6355	5 0733 0		TS	MODECADR	
0375	REF	3	LAST	123	14,6356	0 2127 1		TC	JOBSLEEP	
0376	REF	7	LAST	114	14,6357	0 3044 1	MODABORT	TC	ABORT	IMU OR OPTSTALL ABORT.
0377					14,6360	01210 0		OCT	01210	
0378					14,6361		ENDSTALL		EQUALS	

L MODE SWITCHING AND MARK ROUTINES

USER'S OWN PAGE NO. 14

P0379 THE FOLLOWING ROUTINE INCREMENTS IN 2S COMPLEMENT THE REGISTER WHOSE ADDRESS IS IN ADDRWD BY THE
 R0381 QUANTITY FOUND IN TEM2. THIS MAY BE USED TO INCREMENT DESIRED IMU AND OPTICS CDU ANGLES OR ANY OTHER 2S
 R0383 COMPLEMENT (+0 UNEQUAL TO -0) QUANTITY.

0384	REF	53	LAST	96	14,6361	5	0102	1	CDUINC	TS	TEM2	1S COMPLEMENT INCREMENT ARRIVING IN A.
0385	REF	67	LAST	149	14,6362	2	0077	0		INDEX	BUF	
0386					14,6363	1	0000	0		CCS	0	THE 16TH BIT OF A WILL BE USED TO
0387	REF	80	LAST	202	14,6364	6	4516	1		AD	ONE	ACHIEVE THE REQUIRED 32,768 DISTINCT
0388					14,6365	0	6371	1		TC	+4	STATES.
0389	REF	81	LAST	203	14,6366	6	4516	1		AD	ONE	
0390	REF	82	LAST	203	14,6367	6	4516	1		AD	ONE	A MAY HAVE OVERFLOW PRESENT HERE.
0391					14,6370	4	0000	0		COM		DESIRED -1 IF DESIRED WAS NEGATIVE.
0392	REF	54	LAST	203	14,6371	6	0102	1	+4	AD	TEM2	AND MAYBE OVERFLOW SOME MORE.
0393	REF	177	LAST	202	14,6372	1	0000	0		CCS	A	BACK TO 2S COMPLEMENT.
0394	REF	83	LAST	203	14,6373	6	4516	1		AD	ONE	NOTE THAT CCS TREATS A AS A 16 BIT NO.
0395					14,6374	0	6376	0		TC	+2	
0396					14,6375	4	0000	0		COM		
0397	REF	32	LAST	201	14,6376	5	0034	0		TS	OVCTR	REVERTS -0 TO +0.
0398					14,6377	0	6403	0		TC	+4	NO OVERFLOW - PLANT NEW DESIRED.
0399	REF	178	LAST	203	14,6400	2	0000	0		INDEX	A	OVERFLOW - SIMULATE UN-CORRECTED SIGN.
0400	REF	3	LAST	188	14,6401	3	4477	1		CAF	LIMITS	37777 FOR NEGATIVE - 40000 IF PLUS.
0401	REF	33	LAST	203	14,6402	6	0034	0		AD	OVCTR	OVERFLOW-CORRECTED DIFFERENCE.
0402	REF	68	LAST	203	14,6403	2	0077	0	+4	INDEX	BUF	
0403					14,6404	5	0000	1		TS	0	NEW ANGLE.
0404	REF	4	LAST	193	14,6405	0	5702	1		TC	SWRETURN	RETURN TO CALLER.

L MODE SWITCHING AND MARK ROUTINES

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P0405 MARK REQUESTING ROUTINES.

0406				14,6406	2 0017 0	SXTMARK	INHINT		
0407	REF	8 LAST 201		14,6407	5 0637 0		TS	RUPTREG1	NUMBER OF MARKS REQUESTED.
0408	REF	2 LAST 149		14,6410	1 0735 1		CCS	MARKSTAT	SEE IF MARK BUTTON ALREADY SNATCHED.
0409				14,6411	0 6413 1		TC	+2	YES - ALARM AND END THE STRAY JOB.
0410	REF	1		14,6412	0 6416 1		TC	MARKOK	+0 INDICATES AVAILABLE.
0411	REF	10 LAST 183		14,6413	0 3007 0		TC	ALARM	
0412				14,6414	00105 0		OCT	00105	
0413	REF	9 LAST 169		14,6415	0 2124 1		TC	ENDOFJOB	
0414	REF	4 LAST 150		14,6416	1 0216 0	MARKOK	CCS	VAC1USE	FIND A VAC AREA TO STORE THE MARKS IN.
0415	REF	1		14,6417	0 6432 1		TC	MKVACFND	
0416	REF	3 LAST 148		14,6420	1 0272 1		CCS	VAC2USE	
0417	REF	2 LAST 204		14,6421	0 6432 1		TC	MKVACFND	
0418	REF	3 LAST 148		14,6422	1 0346 1		CCS	VAC3USE	
0419	REF	3 LAST 204		14,6423	0 6432 1		TC	MKVACFND	
0420	REF	3 LAST 148		14,6424	1 0422 1		CCS	VAC4USE	
0421	REF	4 LAST 204		14,6425	0 6432 1		TC	MKVACFND	
0422	REF	3 LAST 148		14,6426	1 0476 0		CCS	VAC5USE	
0423	REF	5 LAST 204		14,6427	0 6432 1		TC	MKVACFND	
0424	REF	8 LAST 202		14,6430	0 3044 1		TC	ABORT	VAC AREAS ALL OCCUPIED - ABORT.
0425				14,6431	01207 0		OCT	01207	
0426	REF	22 LAST 201		14,6432	6 5503 1	MKVACFND	AD	TWO	ADDRESS OF VAC.
0427	REF	3 LAST 204		14,6433	5 0735 0		TS	MARKSTAT	
0428	REF	179 LAST 203		14,6434	2 0000 0		INDEX	A	
0429	REF	4 LAST 76		14,6435	5 0052 0		TS	QPRET	USED TO SHOW NEXT AVAILABLE MARK SLOT.
0430	REF	72 LAST 202		14,6436	3 5501 0		CAF	ZERO	SHOW VACAREA IS OCCUPIED.
0431	REF	4 LAST 204		14,6437	2 0735 1		INDEX	MARKSTAT	
0432				14,6440	4 7777 0		TS	0 -1	
0433	REF	11 LAST 197		14,6441	3 4503 0		CAF	BIT12	PLACE DESIRED NUMBER OF MARKS IN 12 - 14
0434				14,6442	2 5777 1		EXTEND		
0435	REF	9 LAST 204		14,6443	4 0637 1		MP	RUPTREG1	
0436	REF	10 LAST 162		14,6444	3 0003 1		XCH	LP	
0437	REF	5 LAST 204		14,6445	6 0735 0		AD	MARKSTAT	JUST CONTAINS LOW 9 BITS OF VAC ADDRESS.
0438	REF	6 LAST 204		14,6446	5 0735 0		TS	MARKSTAT	
0439	REF	1		14,6447	3 2165 1	MARKEXIT	CAF	PRI032	
0440	REF	4 LAST 168		14,6450	0 2052 1		TC	NOVAC	
0441	REF	1		14,6451	30677 1		CADR	MKVB51	
0442	REF	4 LAST 202		14,6452	0 6020 0		TC	MODEEXIT	

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P0443 MARK SYSTEM RELEASING ROUTINE.

0444	REF	73	LAST	204	14,6453	3 5501 0	MKRELEAS	CAF	ZERO	SHOW MARK SYSTEM NOW AVAILABLE.
0445	REF	7	LAST	204	14,6454	3 0735 0		XCH	MARKSTAT	
0446	REF	180	LAST	204	14,6455	1 0000 0		CCS	A	
0447	REF	181	LAST	205	14,6456	2 0000 0		INDEX	A	
0448					14,6457	5 0000 1		TS	0	
0449	REF	5	LAST	203	14,6460	0 5702 1		TC	SWRETURN	

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P0450 KEYRUPT LEAD-IN AND MARK/MARK ACCEPT PROGRAMS.

0451	REF	5	LAST	159	14,6461	5	0030	1	KEYRUPTA	TS	BANKRUPT		
0452	REF	3	LAST	171	14,6462	4	0053	0	MARK	CS	OPTX		PRECISION OPTICS DRIVE - GATHER DATA
0453	REF	8	LAST	191	14,6463	5	0577	1		TS	RUPTSTOR	+5	IMMEDIATELY AND THEN TRANSFER TO VAC.
0454	REF	3	LAST	171	14,6464	4	0052	1		CS	OPTX		SHAFT OPTICS ENCODER.
0455	REF	9	LAST	206	14,6465	5	0575	0		TS	RUPTSTOR	+3	
0456	REF	4	LAST	195	14,6466	4	0050	0		CS	CDUY		READ INNER-MIDDLE-OUTER IMUCDUS.
0457	REF	10	LAST	206	14,6467	5	0574	1		TS	RUPTSTOR	+2	
0458	REF	4	LAST	195	14,6470	4	0051	1		CS	CDUZ		
0459	REF	11	LAST	206	14,6471	5	0576	0		TS	RUPTSTOR	+4	
0460	REF	5	LAST	195	14,6472	4	0047	0		CS	CDUX		
0461	REF	12	LAST	206	14,6473	5	0600	1		TS	RUPTSTOR	+6	
0462	REF	2	LAST	138	14,6474	0	2677	0		TC	READTIME	+1	SPECIAL DP TIME COUNTER-READING ROUTINE.
04621	REF	6	LAST	182	14,6475	3	4512	0		CAF	BIT5		DO NOT ACCEPT KEYCODE UNLESS PREVIOUS KEYCODE HAS DISAPPEARED FROM IN0 (SEE T4RUPTA). IF SO, BIT5 OF STATE = 0. IF NOT, BIT5 = 1.
04622	REF	22	LAST	170	14,6476	7	0645	1		MASK	STATE		
04623	REF	182	LAST	205	14,6477	1	0000	0		CCS	A		
04624	REF	2	LAST	154	14,6500	0	2264	0		TC	RESUME		
04625	REF	7	LAST	206	14,6501	4	4512	1		CS	BIT5		ACCEPT CODE AND BLOCK KEYRUPTS UNTIL PRESENT KEYCODE HAS GONE AWAY.
04626	REF	23	LAST	206	14,6502	7	0645	1		MASK	STATE		
04627	REF	8	LAST	206	14,6503	6	4512	0		AD	BIT5		
04628	REF	24	LAST	206	14,6504	5	0645	0		TS	STATE		
0463	REF	7	LAST	176	14,6505	1	0004	1		CCS	IN0		SEE IF KEYCODE OR MARK.
0464	REF	84	LAST	203	14,6506	6	4516	1		AD	ONE		
0465	REF	1			14,6507	0	6674	1		TC	KEYCALL		
0466					14,6510	0	6511	1		TC	+1		IN0 SHOULD NEVER CONTAIN -0.
0467	REF	8	LAST	176	14,6511	3	0007	0		XCH	IN3		NOW FIND OUT IF IT WAS A MARK-REJECT.
0468	REF	9	LAST	206	14,6512	3	0007	0		XCH	IN3		
0469	REF	12	LAST	204	14,6513	7	4503	1		MASK	BIT12		OPT ZERO/MARK REJECT BIT.
0470	REF	183	LAST	206	14,6514	1	0000	0		CCS	A		
0471	REF	1			14,6515	0	6611	1		TC	MKREJECT		

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Address	Ref	Label	Address	Value	Code	Operation	Description
0472	REF	8 LAST 205	14,6516	1 0735 1	CC5	MARKSTAT	SEE IF MARKS BEING CALLED FOR.
0473	REF	1	14,6517	0 6543 0	TC	MARK2	
0474	REF	13 LAST 206	14,6520	3 0575 0	XCH	RUPTSTOR +3	STORE IN OBTAINED MPAC COMPLEMENTED.
0475	REF	10 LAST 204	14,6521	5 0637 0	TS	RUPTREG1	OPTICS ANGLES AND MINOR PART OF TIME.
0476	REF	14 LAST 207	14,6522	3 0577 1	XCH	RUPTSTOR +5	-OPTX, -OPTY, AND -TIME1.
0477	REF	15 LAST 202	14,6523	5 0640 0	TS	RUPTREG2	
0478	REF	15 LAST 207	14,6524	3 0573 0	XCH	RUPTSTOR +1	
0479	REF	1	14,6525	5 0641 1	TS	RUPTREG3	
0480	REF	2 LAST 110	14,6526	3 2143 0	CAF	PRI05	CALL SPECIAL DISPLAY JOB
0481	REF	5 LAST 204	14,6527	0 2052 1	TC	NOVAC	
0482	REF	1	14,6530	30651 0	CADR	MARKDISP	
0483	REF	11 LAST 207	14,6531	3 0637 0	XCH	RUPTREG1	PLANT INFORMATION IN MPAC OF REGISTER
0484	REF	19 LAST 201	14,6532	2 0601 1	INDEX	LOCCTR	SET.
0485	REF	174 LAST 148	14,6533	5 0115 1	TS	MPAC	
0486	REF	16 LAST 207	14,6534	3 0640 0	XCH	RUPTREG2	
0487	REF	20 LAST 207	14,6535	2 0601 1	INDEX	LOCCTR	
0488	REF	175 LAST 207	14,6536	5 0116 1	TS	MPAC +1	
0489	REF	2 LAST 207	14,6537	3 0641 1	XCH	RUPTREG3	
0490	REF	21 LAST 207	14,6540	2 0601 1	INDEX	LOCCTR	
0491	REF	176 LAST 207	14,6541	5 0117 0	TS	MPAC +2	
0492	REF	3 LAST 206	14,6542	0 2264 0	TC	RESUME	

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0493	REF	1		14,6543	6 6676 0	MARK2	AD	74K	SEE IF ANY MORE MARKS CALLED FOR.
0494	REF	184	LAST 206	14,6544	1 0000 0		CCS	A	
0495	REF	1		14,6545	0 6552 0		TC	MARK3	
0496				14,6546	76777 1	BIT10BAR	OCT	-1000	
0497	REF	11	LAST 204	14,6547	0 3007 0	BADMARK	TC	ALARM	
0498				14,6550	00106 0		OCT	00106	
0499	REF	4	LAST 207	14,6551	0 2264 0		TC	RESUME	NO FURTHER ACTION HERE.
0500	REF	85	LAST 206	14,6552	6 4516 1	MARK3	AD	ONE	SET BIT 10 = 1 TO ENABLE MARK
0501	REF	1		14,6553	7 6546 1		MASK	BIT10BAR	REJECT.
0502	REF	11	LAST 196	14,6554	6 4505 0		AD	BIT10	
0503	REF	9	LAST 207	14,6555	5 0735 0		TS	MARKSTAT	
0504	REF	4	LAST 109	14,6556	7 4607 0		MASK	LOW9	SET UP REGISTER TRANSFER LOOP.
0505	REF	17	LAST 207	14,6557	5 0640 0		TS	RUPTREG2	ADVANCE POINTER IN QPRET.
0506	REF	185	LAST 208	14,6560	2 0000 0		INDEX	A	
0507	REF	5	LAST 204	14,6561	3 0052 0		XCH	QPRET	PICK UP MARK SLOT-POINTER.
0508	REF	5	LAST 181	14,6562	6 4475 0		AD	SIX	
0509	REF	12	LAST 207	14,6563	5 0637 0		TS	RUPTREG1	
0510	REF	86	LAST 208	14,6564	6 4516 1		AD	ONE	
0511	REF	18	LAST 208	14,6565	2 0640 1		INDEX	RUPTREG2	
0512	REF	6	LAST 208	14,6566	5 0052 0		TS	QPRET	
0513	REF	6	LAST 208	14,6567	3 4475 0		CAF	SIX	LOOP SEVEN TIMES.
0514	REF	19	LAST 208	14,6570	5 0640 0	READLOOP	TS	RUPTREG2	
0515	REF	186	LAST 208	14,6571	2 0000 0		INDEX	A	
0516	REF	16	LAST 207	14,6572	4 0572 0		CS	RUPTSTOR	
0517	REF	13	LAST 208	14,6573	2 0637 1		INDEX	RUPTREG1	
0518				14,6574	5 0000 1		TS	0	
0519	REF	14	LAST 208	14,6575	1 0637 1		CCS	RUPTREG1	ADDRESS NEXT LOCATION IN VAC.
0520	REF	15	LAST 208	14,6576	5 0637 0		TS	RUPTREG1	
0521	REF	20	LAST 208	14,6577	1 0640 1		CCS	RUPTREG2	
0522	REF	1		14,6600	0 6570 0		TC	READLOOP	
0523	REF	2	LAST 173	14,6601	3 2261 0		CAF	HI5	IF ALL REQUESTED MARKS MADE, CHANGE
0524	REF	10	LAST 208	14,6602	7 0735 1		MASK	MARKSTAT	DSKY TO VERB 50 FLASHING.
0525	REF	187	LAST 208	14,6603	1 0000 0		CCS	A	
0526	REF	5	LAST 208	14,6604	0 2264 0		TC	RESUME	
0527	REF	2	LAST 204	14,6605	3 2165 1		CAF	PRIO32	
0528	REF	6	LAST 207	14,6606	0 2052 1		TC	NOVAC	
0529	REF	1		14,6607	30750 0		CADR	MKVB50	
0530	REF	6	LAST 208	14,6610	0 2264 0		TC	RESUME	DONE.

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0531	REF	11	LAST	208	14,6611	1	0735	1	MKREJECT	CCS	MARKSTAT	SEE IF MARKS BEING ACCEPTED.
0532	REF	1			14,6612	0	6616	0		TC	REJECT2	
0533	REF	12	LAST	208	14,6613	0	3007	0		TC	ALARM	CURSE IF NOT.
0534					14,6614		00107	1		OCT	00107	
0535	REF	14	LAST	201	14,6615	0	2256	1		TC	TASKOVER	(UNTIL MK ACCEPT BUTTON AVAILABLE).
0536	REF	12	LAST	208	14,6616	4	4505	1	REJECT2	CS	BIT10	SEE IF MARK HAD BEEN MADE SINCE LAST
0537	REF	12	LAST	209	14,6617	7	0735	1		MASK	MARKSTAT	MARK REJECT, AND SET BIT 10 TO ZERO TO
0538	REF	13	LAST	209	14,6620	3	0735	0		XCH	MARKSTAT	SHOW MARK REJECT.
0539	REF	13	LAST	209	14,6621	7	4505	1		MASK	BIT10	
0540	REF	188	LAST	208	14,6622	1	0000	0		CCS	A	
0541	REF	1			14,6623	0	6627	1		TC	REJECT3	
0542	REF	13	LAST	209	14,6624	0	3007	0		TC	ALARM	DONT ACCEPT TWO MARK REJECTS TOGETHER.
0543					14,6625		00110	1		OCT	00110	
0544	REF	15	LAST	209	14,6626	0	2256	1		TC	TASKOVER	(UNTIL MK REJECT BUTTON AVAILABLE).
0545	REF	5	LAST	208	14,6627	3	4607	1	REJECT3	CAF	LOW9	DECREMENT POINTER TO REJECT MARK.
0546	REF	14	LAST	209	14,6630	7	0735	1		MASK	MARKSTAT	
0547	REF	22	LAST	192	14,6631	5	0577	1		TS	ITEMP1	
0548	REF	5	LAST	176	14,6632	4	5362	1		CS	SEVEN	
0549	REF	23	LAST	209	14,6633	2	0577	0		INDEX	ITEMP1	
0550	REF	7	LAST	208	14,6634	6	0052	0		AD	QPRET	
0551	REF	24	LAST	209	14,6635	2	0577	0		INDEX	ITEMP1	
0552	REF	8	LAST	209	14,6636	5	0052	0		TS	QPRET	NEW POINTER.
0553	REF	13	LAST	206	14,6637	3	4503	0		CAF	BIT12	INCREMENT MARKS-TO-BE-ACCEPTED FIELD
0554	REF	15	LAST	209	14,6640	6	0735	0		AD	MARKSTAT	AND IF FIELD IS NOW NON-ZERO, CHANGE
0555	REF	16	LAST	209	14,6641	3	0735	0		XCH	MARKSTAT	DSKY TO VERB 51 FLASHING TO INDICATE
0556	REF	3	LAST	208	14,6642	7	2261	1		MASK	HI5	MORE MARKS REQUIRED.
0557	REF	189	LAST	209	14,6643	1	0000	0		CCS	A	
0558	REF	16	LAST	209	14,6644	0	2256	1		TC	TASKOVER	(UNTIL BUTTON AVAIL.)
0559	REF	3	LAST	208	14,6645	3	2165	1		CAF	PRI032	
0560	REF	7	LAST	208	14,6646	0	2052	1		TC	NOVAC	
0561	REF	1			14,6647		30755	0		CADR	REMKVB51	
0562	REF	17	LAST	209	14,6650	0	2256	1		TC	TASKOVER	

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0563	REF	1		14,6651	0 3302 0	MARKDISP	TC	GRABDSP		SPECIAL JOB TO DISPLAY UNCALLED-FOR MARK
0564	REF	1		14,6652	0 3310 0		TC	PREGBSY		
0565	REF	177	LAST 207	14,6653	4 0115 0	REMKDSP	CS	MPAC		THE MPAC REGISTERS CONTIN -OPTX, -OPTY,
0566	REF	3	LAST 17	14,6654	5 0616 0		TS	DSPTM1		
0567	REF	178	LAST 210	14,6655	4 0116 0		CS	MPAC +1		
0568	REF	4	LAST 210	14,6656	5 0617 1		TS	DSPTM1 +1		
0569	REF	179	LAST 210	14,6657	4 0117 1		CS	MPAC +2		
0570	REF	2	LAST 27	14,6660	5 0621 1		TS	DSPTM2		
0571	REF	74	LAST 205	14,6661	3 5501 0		CAF	ZERO		
0572	REF	5	LAST 210	14,6662	5 0620 0		TS	DSPTM1 +2		
0573	REF	1		14,6663	3 6672 1		CAF	MKDSPCOD		NOUN-VERB FOR MARK DISPLAY.
0574	REF	1		14,6664	0 3100 0		TC	NVSUB		
0575	REF	1		14,6665	0 6670 0		TC	MKDSPBSY		IF BUSY.
0576	REF	1		14,6666	0 3362 0	ENDMKDSP	TC	FREEDSP		
0577	REF	10	LAST 204	14,6667	0 2124 1		TC	ENDOFJOB		
0578	REF	1		14,6670	3 6673 0	MKDSPBSY	CAF	LREMKDSP		TAKE DATA OUT OF MPAC WHEN RE-AWAKENED.
0579	REF	1		14,6671	0 3320 0		TC	NVSUBUSY		
0580				14,6672	00656 1	MKDSPCOD	OCT	00656		
0581	REF	1		14,6673	30653 1	LREMKDSP	CADR	REMKDSP		
0582	REF	2	LAST 144	14,6674	0 5720 1	KEYCALL	TC	POSTJUMP		GO TO KEYBOARD/DISPLAY BANK WITH A
0583	REF	1		14,6675	10001 1		CADR	KEYRUPTC		GO THRU STANDARD LOC.
0584				14,6676	74000 1	74K	OCT	74000		
0585	REF	1		14,6406		SCTMARK	EQUALS	SXTMARK		

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P0586 KEYBOARD AND DISPLAY ROUTINES FOR MARK PROCEDURES.

R0587 FLASH VERB 51 WHEN WAITING FOR MARKS, CHANGING TO VERB 50 FLASHING WHEN ALL ARE IN.

0589	REF	1		14,6677	3 6753 0	MKVB51	CAF	VB51	ASSUME USING PROGRAM HAS GRABBED DSP.
0590	REF	2	LAST 210	14,6700	0 3100 0		TC	NVSUB	
0591	REF	1		14,6701	0 3315 0		TC	PRENVBSY	
0592	REF	2	LAST 144	14,6702	0 5654 0		TC	BANKCALL	
0593	REF	1		14,6703	14000 1		CADR	FLASHON	
0594	REF	1		14,6704	0 3136 0		TC	ENDIDLE	
0595	REF	1		14,6705	0 6736 0		TC	MKVB5X	DONT RESPOND TO PROCEED OR TERMINATE.
0596	REF	2	LAST 211	14,6706	0 6736 0		TC	MKVB5X	
0597	REF	1		14,6707	3 6747 0		CAF	OCT76	ON ENTER, SEE IF DATA LOADED INSTEAD.
0598	REF	2	LAST 148	14,6710	7 0602 1		MASK	VERBREG	
0599	REF	1		14,6711	6 6714 0		AD	-OCT50	VERBS 50 AND 51 CAUSE END MARK ROUTINES.
0600	REF	190	LAST 209	14,6712	1 0000 0		CCS	A	
0601	REF	3	LAST 211	14,6713	0 6736 0		TC	MKVB5X	ON DATA LOAD, RE-DISPLAY ORIGINAL VERB.
0602				14,6714	77727 0	-OCT50	OCT	-50	
0603	REF	4	LAST 211	14,6715	0 6736 0		TC	MKVB5X	
0604	REF	6	LAST 209	14,6716	3 4607 1		CAF	LOW9	
0605	REF	17	LAST 209	14,6717	7 0735 1		MASK	MARKSTAT	
0606	REF	18	LAST 211	14,6720	5 0735 0		TS	MARKSTAT	VAC ADR IN MARKSTAT AND NO. MARKS MADE
0607				14,6721	4 0000 0		COM		
0608	REF	19	LAST 211	14,6722	2 0735 1		INDEX	MARKSTAT	WILL BE LEFT IN QPRET.
0609	REF	9	LAST 209	14,6723	6 0052 0		AD	QPRET	
0610				14,6724	2 5777 1		EXTEND		
0611	REF	14	LAST 209	14,6725	4 4503 1		MP	BIT12	
0612	REF	87	LAST 208	14,6726	6 4516 1		AD	ONE	
0613	REF	20	LAST 211	14,6727	2 0735 1		INDEX	MARKSTAT	
0614	REF	10	LAST 211	14,6730	5 0052 0		TS	QPRET	
0615				14,6731	2 0017 0		INHINT		GO SERVICE OPTSTALL INTERFACE WITH
0616	REF	88	LAST 211	14,6732	3 4516 1		CAF	ONE	USING PROGRAM.
0617	REF	22	LAST 199	14,6733	0 2173 0		TC	WAITLIST	
0618	REF	1		14,6734	30744 0		CADR	ENDMARKS	
0619	REF	11	LAST 210	14,6735	0 2124 1		TC	ENDOFJOB	

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0620	REF	4	LAST 209	14,6736	3 2261 0	MKVB5X	CAF	H15	RE-DISPLAY VERB 51 IF MORE MARKS
0621	REF	21	LAST 211	14,6737	7 0735 1		MASK	MARKSTAT	WANTED AND VERB 50 IF ALL IN.
0622	REF	191	LAST 211	14,6740	1 0000 0		CCS	A	
0623	REF	3	LAST 176	14,6741	3 4510 1		CAF	BIT7	(MAKES VERB 51).
0624	REF	1		14,6742	6 6746 1		AD	VB50	
0625	REF	2	LAST 204	14,6743	0 6700 0		TC	MKVB51 +1	

0626	REF	1		14,6744	0 6261 1	ENDMARKS	TC	ENDOPT	
0627	REF	4	LAST 199	14,6745	0 6314 1		TC	GOODEND	

0628				14,6746	05000 1	VB50	OCT	5000	
0629				14,6747	00076 0	OCT76	OCT	76	

R0630 ON RECEIPT OF LAST REQUESTED MARK, DISPLAY VERB 50 (STILL FLASHING).

0632	REF	2	LAST 212	14,6750	3 6746 1	MKVB50	CAF	VB50	
0633	REF	1		14,6751	5 0110 1		TS	NVTEMP	SPECIAL ENTRY TO NVSUB WHICH AVOIDS BUSY
0634	REF	3	LAST 211	14,6752	0 3105 0		TC	NVSUB +5	TEST.
0635				14,6753	05100 0	VB51	OCT	5100	
0636	REF	12	LAST 211	14,6754	0 2124 1		TC	ENDOFJOB	

R0637 IF THE ABOVE IS REJECTED, REVERT TO VERB 51.

0638	REF	2	LAST 211	14,6755	3 6753 0	REMKVB51	CAF	VB51	
0639	REF	2	LAST 208	14,6756	0 6751 1		TC	MKVB50 +1	

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P0640 THE FOLLOWING ROUTINE ALLOWS INTERLOCKING OF IMU COMPENSATION AND CERTAIN IMU MODE CHANGES WHICH ARE
 R0642 MEANINGFUL AFTER THE IMU HAS BEEN ALIGNED. THESE INCLUDE IMUFINNW, IMUATTC, AND IMUREENT.

0644				14,6757	2 0017 0	TSTIMACT	INHINT		TEST IMU ACTIVITY BIT TO SEE IF GYROS
0645	REF 129	LAST 201		14,6760	3 0001 0	XCH	Q		
0646	REF 180	LAST 210		14,6761	5 0117 0	TS	MPAC +2		
0647	REF 5	LAST 110		14,6762	4 4504 0	CS	BIT11		BEING TORQUED NOW.
0648	REF 4	LAST 170		14,6763	7 0646 1	MASK	FLAGWRD1		
0649	REF 6	LAST 213		14,6764	6 4504 1	AD	BIT11		
0650	REF 5	LAST 213		14,6765	3 0646 0	XCH	FLAGWRD1		
0651	REF 7	LAST 213		14,6766	7 4504 0	MASK	BIT11		
0652	REF 192	LAST 212		14,6767	1 0000 0	CCS	A		
0653				14,6770	0 6772 0	TC	+2		IMU BUSY.
0654	REF 181	LAST 213		14,6771	0 0117 0	TC	MPAC +2		CHANNEL AVAILABLE - PROCEED AS USUAL.
0655	REF 1			14,6772	3 0072 1	XCH	BANKTEM		PUT THE JOB TO SLEEP FOR MAX TIME IT
0656	REF 182	LAST 213		14,6773	5 0115 1	TS	MPAC		SHOULD TAKE TO COMPENSATE.
0657	REF 3	LAST 202		14,6774	3 0071 1	XCH	TEMQS		
0658	REF 183	LAST 213		14,6775	5 0116 1	TS	MPAC +1		
0659	REF 7	LAST 199		14,6776	3 6103 0	CAF	320MS		
0660	REF 23	LAST 211		14,6777	0 2173 0	TC	WAITLIST		
0661	REF 1			14,7000	31003 0	CADR	IMACT2		
0662	REF 1			14,7001	3 7010 1	CAF	LIMUACTW		
0663	REF 4	LAST 202		14,7002	0 2127 1	TC	JOBSLEEP		

R0664 WAKE UP THE JOB AND SET THE ACTIVITY FLAG.

0665	REF 2	LAST 213		14,7003	3 7010 1	IMACT2	CAF	LIMUACTW
0666	REF 3	LAST 201		14,7004	0 2060 0	TC	JOBWAKE	
0667	REF 1			14,7005	0 3416 1	TC	FLAG1UP	
0668				14,7006	02000 0	DCT	02000	
0669	REF 18	LAST 209		14,7007	0 2256 1	TC	TASKOVER	
0670	REF 1			14,7010	31011 0	LIMUACTW	CADR	IMUACTW
0671				14,7011	2 0017 0	IMUACTW	INHINT	
0672	REF 184	LAST 213		14,7012	3 0115 1	XCH	MPAC	PROCEED WITH MODE SWITCH.
0673	REF 2	LAST 213		14,7013	5 0072 1	TS	BANKTEM	
0674	REF 185	LAST 213		14,7014	3 0116 1	XCH	MPAC +1	
0675	REF 4	LAST 213		14,7015	5 0071 1	TS	TEMQS	
0676	REF 186	LAST 213		14,7016	0 0117 0	TC	MPAC +2	

L IMU COMPENSATION PACKAGE

USER'S OWN PAGE NO. 1

R0001 THE FOLLOWING ROUTINE IS DESIGNED TO COMPENSATE FOR PIPA BIAS AND SCALE FACTOR ERROR. AT THE SAME TIME,
 R0003 IT ACCUMULATES GYRO TORQUE COMMANDS NECESSARY TO COMPENSATE FOR THE ASSOCIATED BIAS AND ACCELERATION-CAUSED GYRO
 R0005 DRIFTS. THIS ROUTINE EXPECTS TO FIND PIPA READINGS IN THE MAJOR PARTS OF DELV (DELVX, DELVY, DELVZ), WITH THE
 R0007 MINOR PARTS IRRELEVANT. OUTPUT FROM 1/PIPA IS DOUBLE PRECISION COMPENSATED DATA, THE MINOR PART OF WHICH USUALLY
 R0009 CONTAINS ALL THE COMPENSATION. 1/PIPA MUST BE CALLED AT LEAST EVERY 2.56 SECONDS, DUE TO SCALING CONSIDERATIONS.
 R0011 SPECIFICALLY, THE CORRECTION IS:

R0012
$$\text{PIPA}_C = \text{PIPA}_I (1 + \text{SCALE FACTOR ERROR}) - \text{BIAS DELTAT}$$

 R0013

R0014 WHERE PIPA_C IS THE COMPENSATED DATA OBTAINED FROM THE SAMPLED PIPA_I .
 R0015

0016				14,7017		BANK 14	
0017	REF 6	LAST 75	14,7017	3 5502 0	1/PIPA	CAF FOUR	LOOP TO PROCESS INPUT PIPA DATA.
0018	REF 69	LAST 203	14,7020	5 0101 1	+1	TS BUF +2	
0019	REF 193	LAST 213	14,7021	2 0000 0		INDEX A	
0020	REF 4	LAST 158	14,7022	4 1001 0		CS DELVX	SAMPLED PIPA INTO MPAC
0021	REF 187	LAST 213	14,7023	5 0115 1		TS MPAC	
0022	REF 70	LAST 214	14,7024	2 0101 0		INDEX BUF +2	SUBTRACT BIAS TERM (LESS THAN 1 BIT).
0023	REF 1		14,7025	4 0736 1		CS PIPABIAS	
0024			14,7026	2 5777 1		EXTEND	
0025	REF 2	LAST 21	14,7027	4 0755 1		MP 1/PIPADT	SUPPLIED BY USER SCALED AT CS 2(-8).
0026	REF 188	LAST 214	14,7030	5 0116 1		TS MPAC +1	
0027	REF 189	LAST 214	14,7031	4 0115 0		CS MPAC	SHIFT THE PIPA READING LEFT THREE PLACES
0028	REF 190	LAST 214	14,7032	5 0115 1		TS MPAC	
0029			14,7033	2 5777 1		EXTEND	IN PREPARATION FOR SCALE FACTOR
0030	REF 15	LAST 197	14,7034	4 4513 0		MP BIT4	CORRECTION. IF IT OVERFLOWS, SHIFT THE
0031	REF 194	LAST 214	14,7035	1 0000 0		CCS A	SCALE FACTOR ERROR RIGHT 11 PLACES
0032	REF 1		14,7036	0 7216 0		TC PIPOVF	TAKING A LOSS IN PRECISION.
0033			14,7037	0 7041 0		TC +2	THE ABOVE HAPPENS AT DELTA VS OF OVER
0034	REF 2	LAST 214	14,7040	0 7216 0		TC PIPOVF	12 G-SECS., RESULTING IN A SCALE FACTOR
0035	REF 71	LAST 214	14,7041	2 0101 0		INDEX BUF +2	CORRECTION GOOD ONLY TO 60 PPM.
0036	REF 1		14,7042	4 0737 0		CS PIPASCF	
00365			14,7043	4 0000 0		COM	
0037			14,7044	2 5777 1		EXTEND	
0038	REF 11	LAST 204	14,7045	4 0003 0		MP LP	
0039	REF 191	LAST 214	14,7046	6 0116 1		AD MPAC +1	ADD TO BIAS CORRECTION.
0040	REF 72	LAST 214	14,7047	2 0101 0		INDEX BUF +2	
0041	REF 5	LAST 214	14,7050	5 1002 1		TS DELVX +1	AND MAYBE SKIP.
0042	REF 75	LAST 210	14,7051	3 5501 0		CAF ZERO	
0043	REF 192	LAST 214	14,7052	6 0115 1		AD MPAC	
0044	REF 73	LAST 214	14,7053	2 0101 0		INDEX BUF +2	
0045	REF 6	LAST 214	14,7054	5 1001 1		TS DELVX	

L IMU COMPENSATION PACKAGE

USER'S OWN PAGE NO. 2

0046	REF	74 LAST 214	14,7055	1 0101 0	PIPJUMP	CCS	BUF +2	LOOP TO PROCESS NEXT COMPONENT.
0047	REF	5 LAST 89	14,7056	6 4335 0		AD	NEG1	
0048	REF	1	14,7057	0 7020 1		TC	1/PIPA +1	
0049	REF	7 LAST 149	14,7060	00756 0	LGCOMP	ADRES	GCOMP	

L IMU COMPENSATION PACKAGE

USER'S OWN PAGE NO. 3

P0050 THE FOLLOWING ROUTINE COMPUTES THE GYRO TORQUES NECESSARY TO COMPENSATE FOR THE ACCELERATION-SENSITIVE
R0052 DRIFTS DUE TO THE DATA JUST PROCESSED, AND SUMS THEM INTO THE GCOMP REGISTERS.

0054	REF	1		14,7061	5 0101 1	TS	GCOMPSW	SET GYRO TORQUE INDICATOR TO ZERO.
0055	REF	75 LAST 215		14,7062	5 0077 1	TS	BUF	RELATIVE ADDRESS OF PRESENT COMPONENT.
0056	REF	7 LAST 214		14,7063	4 1001 0	CS	DELVX	PROCESS X COMPONENT.
0057	REF	193 LAST 214		14,7064	5 0115 1	TS	MPAC	
0058	REF	8 LAST 216		14,7065	4 1002 0	CS	DELVX +1	
0059	REF	194 LAST 216		14,7066	5 0116 1	TS	MPAC +1	
0060	REF	1		14,7067	4 0747 1	CS	ADIAX	
0061	REF	1		14,7070	0 7145 0	TC	GCOMPSUB -1	
0062	REF	1		14,7071	4 1003 1	CS	DELVY	
0063	REF	195 LAST 216		14,7072	5 0115 1	TS	MPAC	
0064	REF	2 LAST 216		14,7073	4 1004 0	CS	DELVY +1	
0065	REF	196 LAST 216		14,7074	5 0116 1	TS	MPAC +1	
0066	REF	1		14,7075	4 0752 0	CS	ADSRAX	
0067	REF	2 LAST 216		14,7076	0 7146 0	TC	GCOMPSUB	
0068	REF	1		14,7077	4 0744 1	CS	GBIASX	ADD IN BIAS DRIFTS.
0069	REF	1		14,7100	0 7171 1	TC	DRIFTSUB	
0070	REF	3 LAST 216		14,7101	4 1003 1	CS	DELVY	COMPUTE Y GYRO COMPENSATION.
0071	REF	197 LAST 216		14,7102	5 0115 1	TS	MPAC	
0072	REF	4 LAST 216		14,7103	4 1004 0	CS	DELVY +1	
0073	REF	198 LAST 216		14,7104	5 0116 1	TS	MPAC +1	
0074	REF	1		14,7105	4 0750 1	CS	ADIAY	
0075	REF	3 LAST 216		14,7106	0 7145 0	TC	GCOMPSUB -1	
0076	REF	1		14,7107	4 1005 1	CS	DELVZ	
0077	REF	199 LAST 216		14,7110	5 0115 1	TS	MPAC	
0078	REF	2 LAST 216		14,7111	4 1006 1	CS	DELVZ +1	
0079	REF	200 LAST 216		14,7112	5 0116 1	TS	MPAC +1	
0080	REF	1		14,7113	4 0753 1	CS	ADSRAY	
0081	REF	4 LAST 216		14,7114	0 7146 0	TC	GCOMPSUB	
0082	REF	1		14,7115	4 0745 0	CS	GBIASY	
0083	REF	2 LAST 216		14,7116	0 7171 1	TC	DRIFTSUB	

L IMU COMPENSATION PACKAGE

USER'S OWN PAGE NO. 4

0084	REF	5	LAST	216	14,7117	4	1003	1	CS	DELVY	CORRESPONDING PATTERN FOR Z GYRO.
0085	REF	201	LAST	216	14,7120	5	0115	1	TS	MPAC	
0086	REF	6	LAST	217	14,7121	4	1004	0	CS	DELVY +1	
0087	REF	202	LAST	217	14,7122	5	0116	1	TS	MPAC +1	
0088	REF	1			14,7123	4	0754	0	CS	ADSRAZ	
0089	REF	5	LAST	216	14,7124	0	7145	0	TC	GCOMP SUB -1	
0090	REF	3	LAST	216	14,7125	4	1005	1	CS	DELVZ	
0091	REF	203	LAST	217	14,7126	5	0115	1	TS	MPAC	
0092	REF	4	LAST	217	14,7127	4	1006	1	CS	DELVZ +1	
0093	REF	204	LAST	217	14,7130	5	0116	1	TS	MPAC +1	
0094	REF	1			14,7131	4	0751	0	CS	ADIAZ	
0095	REF	6	LAST	217	14,7132	0	7145	0	TC	GCOMP SUB -1	
0096	REF	1			14,7133	4	0746	0	CS	GBIASZ	
0097	REF	3	LAST	216	14,7134	0	7171	1	TC	DRIFT SUB	
0098	REF	2	LAST	216	14,7135	1	0101	0	CCS	GCOMP SW	NON-ZERO IF TIME TO PUT OUT COMPENSATION
0099					14,7136	0	7140	0	TC	+2	
0100	REF	6	LAST	205	14,7137	0	5702	1	TC	SWRETURN	TORQUES NOT BIG ENOUGH YET.
0101					14,7140	2	0017	0	INHINT		
0102	REF	2	LAST	114	14,7141	3	2170	0	CAF	PRI035	REQUEST COMPENSATION JOB
0103	REF	8	LAST	209	14,7142	0	2052	1	TC	NOVAC	
0104	REF	1			14,7143		31237	0	CADR	1/GYRO	
0105	REF	5	LAST	204	14,7144	0	6020	0	TC	MODEEXIT	RELINT AND RETURN TO SWRETURN.

L IMU COMPENSATION PACKAGE

USER'S OWN PAGE NO. 5

P0106 SUBROUTINES USED TO ACCUMULATE GYRO COMPENSATION COMMANDS.

0107				14,7145	4 0000 0	-1	COM			(ENTERS HERE TO RE-COMPLEMENT INPUT).
0108	REF 205	LAST 217		14,7146	3 0116 1	GCOMPSUB	XCH	MPAC +1		DOES DP BY SINGLE MULTIPLY WITH DP ADD
0109				14,7147	2 5777 1		EXTEND			TO STORAGE.
0110	REF 206	LAST 218		14,7150	4 0116 0		MP	MPAC +1		
0111	REF 207	LAST 218		14,7151	3 0116 1		XCH	MPAC +1		
0112				14,7152	2 5777 1		EXTEND			
0113	REF 208	LAST 218		14,7153	4 0115 0		MP	MPAC		
0114	REF 34	LAST 203		14,7154	5 0034 0		TS	OVCTR		
0115	REF 12	LAST 214		14,7155	3 0003 1		XCH	LP		
0116	REF 209	LAST 218		14,7156	6 0116 1		AD	MPAC +1		(AND MAYBE INCREMENT OVCTR).
0117	REF 76	LAST 216		14,7157	2 0077 0	BIASCOMP	INDEX	BUF		BIAS COMPENSATION ENTERS HERE.
0118	REF 8	LAST 215		14,7160	6 0757 1		AD	GCOMP +1		
0119	REF 77	LAST 218		14,7161	2 0077 0		INDEX	BUF		
0120	REF 9	LAST 218		14,7162	3 0757 1		XCH	GCOMP +1		
0121	REF 35	LAST 218		14,7163	3 0034 0		XCH	OVCTR		
0122	REF 78	LAST 218		14,7164	2 0077 0		INDEX	BUF		
0123	REF 10	LAST 218		14,7165	6 0756 0		AD	GCOMP		
0124	REF 79	LAST 218		14,7166	2 0077 0		INDEX	BUF		
0125	REF 11	LAST 218		14,7167	5 0756 0		TS	GCOMP		
0126	REF 130	LAST 213		14,7170	0 0001 0		TC	Q		

L IMU COMPENSATION PACKAGE

USER'S OWN PAGE NO. 6

P0127 SUBROUTINE WHICH ADDS IN GYRO BIAS DRIFT, TESTS TORQUE SIZE TO SEE IF COMMANDS SHOULD BE PUT OUT, AND
 R0129 ADVANCES GCOMP POINTER.

0130	REF 131 LAST 218	14,7171	3 0001 0	DRIFTSUB	XCH	Q	
0131	REF 80 LAST 218	14,7172	5 0100 0		TS	BUF +1	
0132	REF 132 LAST 219	14,7173	3 0001 0		XCH	Q	
0133		14,7174	2 5777 1		EXTEND		
0134	REF 3 LAST 214	14,7175	4 0755 1		MP	1/PIPADT	
0135		14,7176	2 5777 1		EXTEND		RESULT WAS IN GYRO PULSES X 2(+2).
0136	REF 7 LAST 214	14,7177	4 5502 1		MP	FOUR	RE-SCALE TO ADD INTO GCOMP REGISTER.
0137	REF 36 LAST 218	14,7200	5 0034 0		TS	OVCTR	
0138	REF 13 LAST 218	14,7201	3 0003 1		XCH	LP	GO TO STANDARD INCREMENT ROUTINE.
0139	REF 1	14,7202	0 7157 0	DRFTSUB2	TC	BIASCOMP	
0140	REF 23 LAST 204	14,7203	3 5503 1		CAF	TWO	INCREMENT POINTER AND
0141	REF 81 LAST 219	14,7204	6 0077 1		AD	BUF	
0142	REF 82 LAST 219	14,7205	3 0077 1		XCH	BUF	CHECK MAGNITUDE OF TORQUE COMMAND. IF
0143	REF 195 LAST 214	14,7206	2 0000 0		INDEX	A	SUFFICIENTLY LARGE, SET GCOMPSW PNZ TO
0144	REF 12 LAST 218	14,7207	1 0756 1		CCS	GCOMP	CALL FOR COMPENSATION JOB, 1/GYRO.
0145		14,7210	0 7212 1		TC	+2	GETS DABS OF COMMAND.
0146	REF 83 LAST 219	14,7211	0 0100 0		TC	BUF +1	
0147	REF 1	14,7212	7 7260 0		MASK	COMPCHK	
0148	REF 196 LAST 219	14,7213	1 0000 0		CCS	A	
0149	REF 3 LAST 217	14,7214	5 0101 1		TS	GCOMPSW	
0150	REF 84 LAST 219	14,7215	0 0100 0		TC	BUF +1	RETURN.

L IMU COMPENSATION PACKAGE

USER'S OWN PAGE NO. 7

P0151 (1/PIPA COMES HERE IF PIPA COUNTER SHOWED A DELTA V OF OVER 12 G-SEC.)

0153	REF	85	LAST	219	14,7216	2	0101	0	PIPOVF	INDEX	BUF +2	SHIFT THE SCALE FACTOR RIGHT 11 ON OVF.
0154	REF	2	LAST	214	14,7217	4	0737	0		CS	PIPASCF	
01545					14,7220	4	0000	0		COM		
0155					14,7221	2	5777	1		EXTEND		
0156	REF	16	LAST	214	14,7222	4	4513	0		MP	BIT4	
0157					14,7223	2	5777	1		EXTEND		FORM DP INCREMENT TO DELV IN THIS CASE.
0158	REF	210	LAST	218	14,7224	4	0115	0		MP	MPAC	
0159	REF	37	LAST	219	14,7225	5	0034	0		TS	OVCTR	
0160	REF	14	LAST	219	14,7226	3	0003	1		XCH	LP	
0161	REF	211	LAST	220	14,7227	6	0116	1		AD	MPAC +1	MAYBE INCREMENTING OVCTR.
0162	REF	86	LAST	220	14,7230	2	0101	0		INDEX	BUF +2	
0163	REF	9	LAST	216	14,7231	3	1002	1		XCH	DELVX +1	NO SKIP SINCE OVCTR SET.
0164	REF	38	LAST	220	14,7232	3	0034	0		XCH	OVCTR	
0165	REF	212	LAST	220	14,7233	6	0115	1		AD	MPAC	
0166	REF	87	LAST	220	14,7234	2	0101	0		INDEX	BUF +2	
0167	REF	10	LAST	220	14,7235	3	1001	1		XCH	DELVX	
0168	REF	1			14,7236	0	7055	0		TC	PIPJUMP	JUMP ON LOOP COUNTER.

L IMU COMPENSATION PACKAGE

USER'S OWN PAGE NO. 8

P0169 THE FOLLOWING JOB IS INITIATED BY 1/PIPA TO PUT OUT COMPENSATING GYRO TORQUE COMMANDS.

0171	REF	8	LAST	213	14,7237	3 4504 1	1/GYRO	CAF	BIT11	IF MODE SWITCH IN PROGRESS, DONT PUT OUT COMPENSATION THIS TIME.
01711	REF	6	LAST	213	14,7240	7 0646 1		MASK	FLAGWRD1	
01712	REF	197	LAST	219	14,7241	1 0000 0		CCS	A	
01713	REF	13	LAST	212	14,7242	0 2124 1		TC	ENDOFJOB	
01714	REF	2	LAST	213	14,7243	0 3416 1		TC	FLAG1UP	SHOW IMU ACTIVITY FLAG TURNED OFF BY GYRO ROUTINES.
01715					14,7244	02000 0		OCT	02000	
0173	REF	1			14,7245	3 7060 0		CAF	LGCOMP	DISABLE THE T4RUPT CDU DRIVE THEMSELVES. NO TWITCH (2+2-) ON ZERO INPUT.
0174	REF	3	LAST	211	14,7246	0 5654 0		TC	BANKCALL	
0175	REF	1			14,7247	31347 0		CADR	GYROSPNT	
0176	REF	4	LAST	221	14,7250	0 5654 0		TC	BANKCALL	
0177	REF	1			14,7251	30331 0		CADR	IMUSTALL	
0178	REF	1			14,7252	0 3066 1		TC	CURTAINS	
0181	REF	76	LAST	214	14,7253	3 5501 0		CAF	ZERO	ZERO GCOMP REGISTERS SINCE COMMANDS HAVE BEEN PUT OUT.
0182	REF	13	LAST	219	14,7254	5 0756 0		TS	GCOMP	
0183	REF	14	LAST	221	14,7255	5 0760 0		TS	GCOMP +2	
0184	REF	15	LAST	221	14,7256	5 0762 1		TS	GCOMP +4	
0185	REF	14	LAST	221	14,7257	0 2124 1		TC	ENDOFJOB	
0186					14,7260	77740 1	COMPCHK	OCT	-37	COMMANDS MUST BE AT LEAST 32 PLS.

L IMU COMPENSATION PACKAGE

USER'S OWN PAGE NO. 9

P0187 THE FOLLOWING ROUTINE SUPPLIES GYRO DRIFT COMPENSATION DURING THOSE PORTIONS OF A MISSION WHICH DO NOT
 R0189 USE PIPA DATA. THIS JOB IS CALLED EVERY 81.93 SECONDS (WHEN APPROPRIATE) BY THE IDLE TASK.

0191	REF	5 LAST 191	14,7261	4 0036 0	BIASONLY	CS	TIME1	COMPUTE TIME DIFFERENCE (ALMOST ALWAYS
0192			14,7262	4 0000 0		COM		81.93 SECS.).
0193	REF	1	14,7263	3 0755 0		XCH	OLDBT1	
0194			14,7264	4 0000 0		COM		
0195	REF	2 LAST 222	14,7265	6 0755 0		AD	OLDBT1	
0196	REF	198 LAST 221	14,7266	1 0000 0	BONLY2	CCS	A	LASTBIAS ENTERS HERE.
0197	REF	89 LAST 211	14,7267	6 4516 1		AD	ONE	
0198	REF	1	14,7270	0 7275 0		TC	BONLY3	
0199			14,7271	0 7273 0		TC	+2	
0200	REF	15 LAST 221	14,7272	0 2124 1		TC	ENDOFJOB	MAY HAVE A COMPUTED DIFF = 0.
0201			14,7273	4 0000 0		COM		
0202	REF	15 LAST 201	14,7274	6 4476 0		AD	POS MAX	
0203			14,7275	2 5777 1	BONLY3	EXTEND		FORM DELTA-T AT 2(+8) CS.
0204	REF	5 LAST 154	14,7276	4 4506 1		MP	BIT9	SHIFT RIGHT 6.
0205	REF	213 LAST 220	14,7277	5 0115 1		TS	MPAC	
0206	REF	13 LAST 75	14,7300	5 0106 0		TS	TEM9	
0207	REF	15 LAST 220	14,7301	3 0003 1		XCH	LP	
0208	REF	214 LAST 222	14,7302	5 0116 1		TS	MPAC +1	
0209	REF	14 LAST 75	14,7303	5 0107 1		TS	TEM10	
0210	REF	77 LAST 221	14,7304	3 5501 0		CAF	ZERO	
0211	REF	4 LAST 219	14,7305	5 0101 1		TS	GCOMPSW	
0212	REF	88 LAST 220	14,7306	5 0077 1		TS	BUF	
0213	REF	2 LAST 216	14,7307	4 0744 1		CS	GBIASX	DO X, Y, AND THEN Z.
0214	REF	1	14,7310	0 7331 1		TC	FBIASSUB	
0215	REF	14 LAST 222	14,7311	4 0106 1		CS	TEM9	RELOAD DT.
0216	REF	215 LAST 222	14,7312	5 0115 1		TS	MPAC	
0217	REF	15 LAST 222	14,7313	4 0107 0		CS	TEM10	
0218	REF	216 LAST 222	14,7314	5 0116 1		TS	MPAC +1	
0219	REF	2 LAST 216	14,7315	4 0745 0		CS	GBIASY	
0220	REF	2 LAST 222	14,7316	0 7330 0		TC	FBIASSUB -1	
0221	REF	15 LAST 222	14,7317	4 0106 1		CS	TEM9	
0222	REF	217 LAST 222	14,7320	5 0115 1		TS	MPAC	
0223	REF	16 LAST 222	14,7321	4 0107 0		CS	TEM10	
0224	REF	218 LAST 222	14,7322	5 0116 1		TS	MPAC +1	
0225	REF	2 LAST 217	14,7323	4 0746 0		CS	GBIASZ	
0226	REF	3 LAST 222	14,7324	0 7330 0		TC	FBIASSUB -1	

L IMU COMPENSATION PACKAGE

USER'S OWN PAGE NO. 10

0227	REF	5	LAST	222	14,7325	1 0101 0		CCS	GCOMP SW	PUT OUT COMPENSATION IF CALLED FOR.
0228	REF	2	LAST	217	14,7326	0 7237 0		TC	1/GYRO	
0229	REF	16	LAST	222	14,7327	0 2124 1		TC	ENDOFJOB	
0230					14,7330	4 0000 0	-1	COM		
0231	REF	133	LAST	219	14,7331	3 0001 0	FBIASSUB	XCH	Q	
0232	REF	89	LAST	222	14,7332	5 0100 0		TS	BUF +1	
0233	REF	78	LAST	222	14,7333	3 5501 0		CAF	ZERO	
0234	REF	219	LAST	222	14,7334	5 0117 0		TS	MPAC +2	
0235	REF	134	LAST	223	14,7335	3 0001 0		XCH	Q	
0236	REF	2	LAST	74	14,7336	0 5416 1		TC	SHORTMP	
0237	REF	220	LAST	223	14,7337	3 0115 1		XCH	MPAC	
0238	REF	39	LAST	220	14,7340	5 0034 0		TS	OVCTR	
0239	REF	221	LAST	223	14,7341	3 0116 1		XCH	MPAC +1	
0240	REF	1			14,7342	0 7202 0		TC	DRFTSUB2	RETURN TO CALLER VIA BUF +1.
0241	REF	3	LAST	222	14,7343	3 0755 0	LASTBIAS	XCH	OLDBT1	COMES HERE FOR TRANSITION TO PIPA READ-
0242					14,7344	4 0000 0		COM		ING MODE. NEW VALUE OF 1/PIPADT ARRIVES
0243	REF	222	LAST	223	14,7345	6 0115 1		AD	MPAC	IN A WITH WITH TIME1 AT PIPA ZEROING IN
0244	REF	1			14,7346	0 7266 1		TC	BONLY2	MPAC. EXITS VIA ENDOFJOB.

L IRIG PULSE-TORQUING ROUTINES

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R0001 THE FOLLOWING PULSE-TORQUING OPTIONS ARE AVAILABLE:

R0002 GYROSPNT SINGLE PRECISION INPUTS WITH NO TWITCH (IE ZERO OUTPUT ON ZERO COMMAND).
 R0004 GYROSPTW SINGLE PRECISION INPUT WITH TWITCH ON ZERO (2+ THEN 2-).
 R0006 GYRODPNT DOUBLE PRECISION INPUTS (SIGN AGREEMENT UNNECESSARY) WITH NO TWITCH.

R0008 ALL OF THE ABOVE SHOULD BE FOLLOWED EVENTUALLY BY A CALL TO IMUSTALL.

0009				14,7347								
0010	REF	223	LAST	223	14,7347	5	0115	1	GYROSPNT	TS	MPAC	ADDRESS OF THREE REGISTER COMMAND SET ARRIVES IN A. SEE IF GYRO ROUTINES BUSY. (AND RETURN WHEN AVAILABLE.)
0011	REF	2	LAST	149	14,7350	1	0764	0		CCS	LGYRO	
0012	REF	1			14,7351	0	7524	0		TC	GYROBUSY	
0013	REF	24	LAST	219	14,7352	3	5503	1	SPNT	CAF	TWO	SET UP LOOP TO AUGMENT (+ OR -) EACH COMMAND BY TWO IF NON-ZERO.
0014	REF	224	LAST	224	14,7353	5	0116	1		TS	MPAC +1	
0015					14,7354	6	0000	1		DOUBLE		
0016	REF	225	LAST	224	14,7355	6	0115	1		AD	MPAC	
0017	REF	90	LAST	223	14,7356	5	0077	1		TS	BUF	
0018	REF	199	LAST	222	14,7357	2	0000	0		INDEX	A	
0019					14,7360	1	0000	0		CCS	0	
0020	REF	25	LAST	224	14,7361	3	5503	1		CAF	TWO	
0021					14,7362	0	7364	1		TC	+2	(NO INCREMENT IF +-0).
0022	REF	26	LAST	224	14,7363	4	5503	0		CS	TWO	
0023	REF	91	LAST	224	14,7364	2	0077	0		INDEX	BUF	
0024					14,7365	6	0000	1		AD	0	
0025	REF	92	LAST	224	14,7366	2	0077	0		INDEX	BUF	
0026					14,7367	3	0000	1		XCH	0	(JUST TO BE SAFE).
0027	REF	226	LAST	224	14,7370	1	0116	0		CCS	MPAC +1	
0028	REF	1			14,7371	0	7353	0		TC	SPNT +1	
0029					14,7372	2	0017	0	SPGYREX	INHINT		
0030	REF	90	LAST	222	14,7373	3	4516	1		CAF	ONE	
0031	REF	24	LAST	213	14,7374	0	2173	0		TC	WAITLIST	
0032	REF	1			14,7375		21504	0		CADR	DOGYROSP	
0033	REF	5	LAST	155	14,7376	4	4473	1	GYROEX2	CS	THREE	INITIALIZE CDUIND TO START GYRO TASKS AT Y GYRO (ORDER IS YZX).
0034	REF	15	LAST	199	14,7377	5	0677	1		TS	CDUIND	
0035	REF	8	LAST	219	14,7400	4	5502	1		CS	FOUR	
0036	REF	227	LAST	224	14,7401	6	0115	1		AD	MPAC	SET LGYROD PNZ TO INDICATE GYRO ACTIVITY AND USE LGYRO TO STORE THE ADDRESS OFF THE COMMANDS.
0037	REF	3	LAST	224	14,7402	5	0764	1		TS	LGYRO	
0038	REF	6	LAST	217	14,7403	0	6020	0		TC	MODEEXIT	

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P0039 SINGLE PRECISION WITH TWITCH.

0040	REF 228	LAST 224	14,7404	5 0115 1	GYROSPTW	TS	MPAC	
0041	REF 4	LAST 224	14,7405	1 0764 0		CCS	LGYRO	SAME PROLOGUE AS GYROSPNT
0042	REF 2	LAST 224	14,7406	0 7524 0		TC	GYROBUSY	
0043	REF 27	LAST 224	14,7407	3 5503 1	SPTW	CAF	TWO	SET UP LOOP TO AUGMENT BY 2 (+ OR-),
0044	REF 229	LAST 225	14,7410	5 0116 1		TS	MPAC +1	WITH A PLUS TWO AUGMENT ON +-0.
0045			14,7411	6 0000 1		DOUBLE		
0046	REF 230	LAST 225	14,7412	6 0115 1		AD	MPAC	
0047	REF 93	LAST 224	14,7413	5 0077 1		TS	BUF	
0048	REF 200	LAST 224	14,7414	2 0000 0		INDEX	A	
0049			14,7415	1 0000 0		CCS	0	
0050			14,7416	0 7421 1		TC	+3	
0051			14,7417	0 7421 1		TC	+2	
0052			14,7420	0 7423 0		TC	+3	
0053	REF 28	LAST 225	14,7421	3 5503 1		CAF	TWO	
0054			14,7422	0 7424 1		TC	+2	
0055	REF 29	LAST 225	14,7423	4 5503 0	+3	CS	TWO	
0056	REF 94	LAST 225	14,7424	2 0077 0		INDEX	BUF	
0057			14,7425	6 0000 1		AD	0	
0058	REF 95	LAST 225	14,7426	2 0077 0		INDEX	BUF	
0059			14,7427	3 0000 1		XCH	0	
0060	REF 231	LAST 225	14,7430	1 0116 0		CCS	MPAC +1	
0061	REF 1		14,7431	0 7410 0		TC	SPTW +1	
0062	REF 1		14,7432	0 7372 0		TC	SPGYREX	SET UP PULSE-TORQUING TASKS.

L IRIG PULSE-TORQUING ROUTINES

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P0063 DOUBLE PRECISION INPUTS WITH NO TWITCH ON ZERO.

0064	REF	6	LAST	84	14,7433	5	0113	1	GYRODPNT	TS	ARETURN	SAVE ADDRESS OF INPUT COMMANDS.
0065	REF	3	LAST	202	14,7434	0	5706	0		TC	MAKECADR	SAVE RETURN ADDRESS SINCE WE MUST
0066	REF	83	LAST	202	14,7435	3	0062	0		XCH	ADDRWD	DO A BANKCALL TO TPAGREE.
0067	REF	14	LAST	93	14,7436	5	0064	0		TS	TEM11	
0068	REF	79	LAST	223	14,7437	3	5501	0		CAF	ZERO	
0069	REF	232	LAST	225	14,7440	5	0117	0		TS	MPAC +2	
0070	REF	30	LAST	225	14,7441	3	5503	1	DPNT	CAF	TWO	
0071	REF	96	LAST	225	14,7442	5	0077	1		TS	BUF	THIS LOOP FORCES SIGN AGREEMENT IN THE
0072					14,7443	6	0000	1		DOUBLE		DP INPUT COMMANDS, AUGMENTING ON
0073	REF	7	LAST	226	14,7444	6	0113	1		AD	ARETURN	NON-ZERO.
0074	REF	97	LAST	226	14,7445	5	0100	0		TS	BUF +1	
0075	REF	201	LAST	225	14,7446	2	0000	0		INDEX	A	
0076					14,7447	3	0000	1		XCH	0	
0077	REF	233	LAST	226	14,7450	5	0115	1		TS	MPAC	
0078	REF	98	LAST	226	14,7451	2	0100	1		INDEX	BUF +1	
0079					14,7452	3	0001	0		XCH	1	
0080	REF	234	LAST	226	14,7453	5	0116	1		TS	MPAC +1	
0081	REF	5	LAST	221	14,7454	0	5654	0		TC	BANKCALL	
0082	REF	4	LAST	94	14,7455		07154	0		CADR	TPAGREE	
0083	REF	202	LAST	226	14,7456	1	0000	0		CCS	A	AUGMENT BY TWO IF NON-ZERO. TPAGREE
0084	REF	31	LAST	226	14,7457	3	5503	1		CAF	TWO	RETURNS +1,+0,-1.
0085	REF	32	LAST	226	14,7460	6	5503	1		AD	TWO	
0086	REF	3	LAST	68	14,7461	6	4340	1		AD	NEG2	
0087	REF	235	LAST	226	14,7462	6	0116	1		AD	MPAC +1	DIVIDE BY POSMAX - IE PLACE IN THE MAJOR
0088	REF	236	LAST	226	14,7463	6	0115	1		AD	MPAC	PART OF EACH COMMAND THE NUMBER OF
0089	REF	99	LAST	226	14,7464	2	0100	1		INDEX	BUF +1	POSMAX PULSE TRAINS TO BE PUT OUT,
0090					14,7465	5	0001	0		TS	1	LEAVING THE REMAINDER IN THE MINOR PART.
0091					14,7466	0	7476	0		TC	+8D	
0092	REF	135	LAST	223	14,7467	5	0001	0		TS	Q	ON OVERFLOW, ADD +-1 TO THE MINOR PART
0093	REF	100	LAST	226	14,7470	2	0100	1		INDEX	BUF +1	AS WELL AS THE MAJOR PART.
0094					14,7471	6	0001	0		AD	1	
0095	REF	101	LAST	226	14,7472	2	0100	1		INDEX	BUF +1	
0096					14,7473	5	0001	0		TS	1	NO OVERFLOW HERE.
0097	REF	136	LAST	226	14,7474	3	0001	0		XCH	Q	
0098					14,7475	0	7477	1		TC	+2	
0099	REF	80	LAST	226	14,7476	3	5501	0	+8D	CAF	ZERO	
0100	REF	237	LAST	226	14,7477	6	0115	1		AD	MPAC	
0101	REF	102	LAST	226	14,7500	2	0100	1		INDEX	BUF +1	
0102					14,7501	3	0000	1		XCH	0	

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0103	REF 103	LAST 226	14,7502	1 0077 0	CCS	BUF	
0104	REF 1		14,7503	0 7442 1	TC	DPNT +1	
0105	REF 8	LAST 226	14,7504	3 0113 1	XCH	ARETURN	PREPARE FOR POSSIBLE GYROBUSY CALL.
0106	REF 238	LAST 226	14,7505	5 0115 1	TS	MPAC	
0107	REF 5	LAST 225	14,7506	1 0764 0	CCS	LGYRO	
0108	REF 1		14,7507	0 7543 1	TC	GYROBSY2	
0109	REF 5	LAST 189	14,7510	3 2261 0	CAF	BANKMASK	
0110	REF 15	LAST 226	14,7511	7 0064 1	MASK	TEM11	
0111	REF 3	LAST 213	14,7512	5 0072 1	TS	BANKTEM	
0112	REF 10	LAST 119	14,7513	3 4606 0	CAF	LOW10	
0113	REF 16	LAST 227	14,7514	7 0064 1	MASK	TEM11	
0114	REF 4	LAST 110	14,7515	6 4373 1	AD	6K	
0115	REF 5	LAST 213	14,7516	5 0071 1	TS	TEMQS	
0116			14,7517	2 0017 0	INHINT		
0117	REF 91	LAST 224	14,7520	3 4516 1	CAF	ONE	
0118	REF 25	LAST 224	14,7521	0 2173 0	TC	WAITLIST	
0119	REF 1		14,7522	21571 1	CADR	DOGYRO	
0120	REF 1		14,7523	0 7376 1	TC	GYROEX2	

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P0121 GYRO STALLING ROUTINES - CALLED VERY RARELY BY AT MOST ONE ROUTINE AT A TIME.

0123	REF 137	LAST 226	14,7524	3 0001 0	GYROBUSY	XCH	Q	RETURN ADDRESS TO MPAC.
0124	REF 239	LAST 227	14,7525	5 0117 0		TS	MPAC +2	
0125	REF 4	LAST 226	14,7526	0 5706 0		TC	MAKECADR	CALLERS RETURN CADR TO MPAC +1.
0126	REF 84	LAST 226	14,7527	3 0062 0		XCH	ADDRWD	
0127	REF 240	LAST 228	14,7530	5 0116 1		TS	MPAC +1	
0128	REF 1		14,7531	3 7547 0	REGSLEEP	CAF	CADRNEWG	
0129	REF 5	LAST 213	14,7532	0 2127 1		TC	JOBSLEEP	AT STANDARD LOCATION.
0130	REF 6	LAST 227	14,7533	1 0764 0	NEWGYRO	CCS	LGYRO	SEE IF ROUTINES STILL AVAILABLE (SHOULD
0131	REF 1		14,7534	0 7531 1		TC	REGSLEEP	BE). IF NOT, WAIT SOME MORE.
0132	REF 241	LAST 228	14,7535	3 0116 1		XCH	MPAC +1	RESTORE RETURN CADR TO STANDARD SWCALL
0133	REF 4	LAST 227	14,7536	5 0072 1		TS	BANKTEM	(BANKCALL) FORM.
0134	REF 11	LAST 227	14,7537	7 4606 1		MASK	LOW10	
0135	REF 5	LAST 227	14,7540	6 4373 1		AD	6K	
0136	REF 6	LAST 227	14,7541	5 0071 1		TS	TEMQS	
0137	REF 242	LAST 228	14,7542	0 0117 0		TC	MPAC +2	
0138	REF 138	LAST 228	14,7543	3 0001 0	GYROBSY2	XCH	Q	DP WAIT.
0139	REF 243	LAST 228	14,7544	5 0117 0		TS	MPAC +2	
0140	REF 17	LAST 227	14,7545	3 0064 0		XCH	TEM11	
0141	REF 2	LAST 228	14,7546	0 7530 0		TC	REGSLEEP -1	
0142	REF 1		14,7547	31533 0	CADRNEWG	CADR	NEWGYRO	

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P0144 TASKS FOR SENDING OUT SINGLE PRECISION COMMANDS.

0145					10,7504		BANK	10		
0146	REF	1			10,7504	0 7704 0	DOGYROSP	TC	SETUPSUB	COMMON INITIALIZATION SUBROUTINE.
0147	REF	3	LAST 207		10,7505	2 0641 0		INDEX	RUPTREG3	
0148					10,7506	1 0000 0		CCS	0	PUT OUT NEXT COMMAND.
0149	REF	1			10,7507	0 7523 1		TC	POSGOUTS	
0150	REF	1			10,7510	0 7512 0		TC	GYROADVS	NO COMMAND IF +-0.
0151	REF	1			10,7511	0 7537 1		TC	NEGGOUTS	
0152	REF	16	LAST 224		10,7512	4 0677 0	GYROADVS	CS	CDUIND	ADVANCE TO NEXT GYRO IN ORDER YZX.
0153	REF	203	LAST 226		10,7513	2 0000 0		INDEX	A	
0154					10,7514	0 7513 1		TC	-1	
0155	REF	1			10,7515	0 7721 1		TC	ENDGYRO	
0156	REF	7	LAST 208		10,7516	3 4475 0		CAF	SIX	
0157	REF	4	LAST 226		10,7517	6 4340 1		AD	NEG2	
0158					10,7520	4 0000 0		COM		
0159	REF	17	LAST 229		10,7521	5 0677 1		TS	CDUIND	
0160	REF	2	LAST 224		10,7522	0 7504 1		TC	DOGYROSP	
0161	REF	92	LAST 227		10,7523	6 4516 1	POSGOUTS	AD	ONE	
0162	REF	40	LAST 223		10,7524	5 0034 0		TS	OVCTR	
0163	REF	2	LAST 171		10,7525	0 6631 0		TC	OUT2SUB	PUT OUT COMMAND, SAVING COMMAND FOR
0164	REF	1			10,7526	0 7672 0		TC	GETDT	DT COMPUTATION.
0165	REF	3	LAST 163		10,7527	3 0032 0		XCH	LPRUPT	
0166	REF	26	LAST 227		10,7530	0 2173 0		TC	WAITLIST	
0167	REF	1			10,7531	21533 1		CADR	TWEAKSP	PUT OUT 2- WHEN COMMAND IS OUT.
0168	REF	19	LAST 213		10,7532	0 2256 1		TC	TASKOVER	ALL FOR NOW.
0169	REF	2	LAST 229		10,7533	0 7704 0	TWEAKSP	TC	SETUPSUB	INITIALIZE.
0170	REF	33	LAST 226		10,7534	4 5503 0		CS	TWO	PUT OUT 2- AND ADVANCE TO NEXT GYRO.
0171	REF	3	LAST 229		10,7535	0 6631 0		TC	OUT2SUB	
0172	REF	2	LAST 229		10,7536	0 7512 0		TC	GYROADVS	
0173	REF	93	LAST 229		10,7537	6 4516 1	NEGGOUTS	AD	ONE	GET ABS OF COMMAND AND SAVE IN OVCTR.
0174	REF	41	LAST 229		10,7540	5 0034 0		TS	OVCTR	
0175	REF	34	LAST 229		10,7541	3 5503 1		CAF	TWO	PUT OUT 2+ BEFORE NEGATIVE PULSE TRAIN.
0176	REF	4	LAST 229		10,7542	0 6631 0		TC	OUT2SUB	
0177	REF	2	LAST 229		10,7543	0 7672 0		TC	GETDT	COMPUTE WAITLIST DELTA T.
0178	REF	6	LAST 209		10,7544	3 5362 0		CAF	SEVEN	
0179	REF	204	LAST 229		10,7545	1 0000 0		CCS	A	PUT IN A DELAY TO ALLOW 2+ PULSES
0180					10,7546	0 7545 1		TC	-1	ENOUGH TIME TO GET OUT (3 PULSE TIMES).
0181	REF	42	LAST 229		10,7547	4 0034 1		CS	OVCTR	PUT OUT NEGATIVE COMMAND.
0182	REF	5	LAST 229		10,7550	0 6631 0		TC	OUT2SUB	
0183	REF	4	LAST 229		10,7551	3 0032 0		XCH	LPRUPT	CALL WAITLIST FOR TASK DUE WHEN PULSE
0184	REF	27	LAST 229		10,7552	0 2173 0		TC	WAITLIST	TRAIN COMPLETE.

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0185	REF	3	LAST	229	10,7553	21512	1
0186	REF	20	LAST	229	10,7554	0 2256	1

CADR	GYROADVS
TC	TASKOVER

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P0187 WAITLIST TASKS TO SEND OUT DP PULSE TRAINS TO THE GYROS.

0188	REF	3	LAST 229	10,7555	0	7704	0	TWEAKGY	TC	SETUPSUB	FINISHED WITH POSITIVE TRAINS TO A GYRO.
0189	REF	35	LAST 229	10,7556	4	5503	0		CS	TWO	SEND OUT 2- TO LEAVE GYRO IN - STATE.
0190	REF	6	LAST 229	10,7557	0	6631	0		TC	OUT2SUB	
0191	REF	18	LAST 229	10,7560	4	0677	0	GYROADV	CS	CDUIND	ADVANCE TO THE NEXT GYRO IN ORDER YZX.
0192	REF	11	LAST 176	10,7561	7	4720	1		MASK	LOW7	BIT 14 IS 1 IF 2+ PULSES HAD BEEN SENT
0193	REF	205	LAST 229	10,7562	2	0000	0		INDEX	A	BEFORE A NEGATIVE COMMAND.
0194				10,7563	0	7562	1		TC	-1	
0195	REF	1		10,7564	0	7715	0		TC	ENDGYRO1	
0196	REF	8	LAST 229	10,7565	3	4475	0		CAF	SIX	
0197	REF	5	LAST 229	10,7566	6	4340	1		AD	NEG2	(CAME HERE FROM TC WITH C(A)=4.)
0198				10,7567	4	0000	0		COM		
0199	REF	19	LAST 231	10,7570	5	0677	1		TS	CDUIND	
0200	REF	4	LAST 231	10,7571	0	7704	0	DOGYRO	TC	SETUPSUB	SERVICE GYRO WHOSE *NUMBER* IS IN CDUIND
0201	REF	4	LAST 229	10,7572	2	0641	0		INDEX	RUPTREG3	
0202				10,7573	1	0000	0		CCS	0	MAJOR PART IS POSMAX COUNT.
0203	REF	1		10,7574	0	7605	0		TC	DOPOSMAX	PUT OUT POSMAX.
0204	REF	1		10,7575	0	7577	0		TC	DOMINOR	
0205	REF	1		10,7576	0	7615	1		TC	DONEGMAX	
0206	REF	5	LAST 231	10,7577	2	0641	0	DOMINOR	INDEX	RUPTREG3	SEND OUT REMAINDER OF COMMAND.
0207				10,7600	1	0001	1		CCS	1	
0208	REF	1		10,7601	0	7640	1		TC	POSGOUT	
0209	REF	1		10,7602	0	7556	0		TC	TWEAKGY +1	FINISHED WITH LONG + PULSE TRAIN.
0210	REF	1		10,7603	0	7650	0		TC	NEGGOUT	
0211	REF	1		10,7604	0	7560	0		TC	GYROADV	DONE WITH LONG - TRAIN OR ZERO INPUT.
0212	REF	6	LAST 231	10,7605	2	0641	0	DOPOSMAX	INDEX	RUPTREG3	PUT AWAY DECREMENTED POSMAX COUNT.
0213				10,7606	5	0000	1		TS	0	
0214	REF	16	LAST 222	10,7607	3	4476	0		CAF	POSMAX	
0215	REF	7	LAST 231	10,7610	0	6631	0	DOMAX	TC	OUT2SUB	
0216	REF	1		10,7611	3	7740	0		CAF	FULLDT	
0217	REF	28	LAST 229	10,7612	0	2173	0	GYROWAIT	TC	WAITLIST	
0218	REF	2	LAST 227	10,7613		21571	1		CADR	DOGYRO	
0219	REF	21	LAST 230	10,7614	0	2256	1		TC	TASKOVER	

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0220				10,7615	4 0000 0	DONEGMAX	COM		
0221	REF	7 LAST 231		10,7616	2 0641 0		INDEX	RUPTREG3	
0222				10,7617	5 0000 1		TS	0	DECREMENTED POSMAX (NEGMAX) COUNT.
0223	REF	20 LAST 231		10,7620	4 0677 0		CS	CDUIND	SEE IF 2+ PULSES HAVE BEEN PUT OUT YET,
0224	REF	5 LAST 147		10,7621	7 4520 0		MASK	NEG1/2	LEAVING WORD THAT THEY WILL BE OUT
0225	REF	8 LAST 178		10,7622	6 4501 1		AD	BIT14	BY TASKOVER TIME.
0226				10,7623	4 0000 0		COM		
0227	REF	21 LAST 232		10,7624	3 0677 1		XCH	CDUIND	
0228	REF	9 LAST 232		10,7625	7 4501 0		MASK	BIT14	
0229	REF	206 LAST 231		10,7626	1 0000 0		CCS	A	
0230				10,7627	0 7631 1		TC	+2	
0231	REF	1		10,7630	0 7636 0		TC	NEGMAX2	ALREADY OUT.
0232	REF	36 LAST 231		10,7631	3 5503 1		CAF	TWO	NOT OUT YET - DO SO.
0233	REF	8 LAST 231		10,7632	0 6631 0		TC	OUT2SUB	
0234	REF	37 LAST 232		10,7633	3 5503 1		CAF	TWO	WAIT FOR THEM TO GET OUT BEFORE DELIVER-
0235	REF	207 LAST 232		10,7634	1 0000 0		CCS	A	ING THE REAL COMMAND.
0236				10,7635	0 7634 1		TC	-1	
0237	REF	17 LAST 231		10,7636	4 4476 1	NEGMAX2	CS	POSMAX	
0238	REF	1		10,7637	0 7610 1		TC	DOMAX	
0239	REF	94 LAST 229		10,7640	6 4516 1	POSGOUT	AD	ONE	FRACTIONAL POSITIVE COMMAND.
0240	REF	43 LAST 229		10,7641	5 0034 0		TS	OVCTR	
0241	REF	9 LAST 232		10,7642	0 6631 0		TC	OUT2SUB	DELIVER COMMAND.
0242	REF	3 LAST 229		10,7643	0 7672 0		TC	GETDT	GET TIME TO END OF PULSE TRAIN.
0243	REF	5 LAST 229		10,7644	3 0032 0		XCH	LPRUPT	(ANSWER LEFT IN LPRUPT).
0244	REF	29 LAST 231		10,7645	0 2173 0		TC	WAITLIST	
0245	REF	2 LAST 231		10,7646	21555 1		CADR	TWEAKGY	SUPPLY 2- PULSES AT END.
0246	REF	22 LAST 231		10,7647	0 2256 1		TC	TASKOVER	
0247	REF	95 LAST 232		10,7650	6 4516 1	NEGGOUT	AD	ONE	FRACTIONAL NEGATIVE COMMAND.
0248	REF	44 LAST 232		10,7651	5 0034 0		TS	OVCTR	
0249	REF	22 LAST 232		10,7652	4 0677 0		CS	CDUIND	SEE IF 2+ PULSES ALREADY OUT.
0250	REF	10 LAST 232		10,7653	7 4501 0		MASK	BIT14	
0251	REF	208 LAST 232		10,7654	1 0000 0		CCS	A	
0252	REF	1		10,7655	0 7663 0		TC	NEGGOUT2	
0253	REF	38 LAST 232		10,7656	3 5503 1		CAF	TWO	
0254	REF	10 LAST 232		10,7657	0 6631 0		TC	OUT2SUB	
0255	REF	7 LAST 229		10,7660	3 5362 0		CAF	SEVEN	ALLOW AT LEAST 3 PULSE TIMES FOR THE 2+
0256	REF	209 LAST 232		10,7661	1 0000 0		CCS	A	PULSES TO GET OUT.
0257				10,7662	0 7661 1		TC	-1	
0258	REF	4 LAST 232		10,7663	0 7672 0	NEGGOUT2	TC	GETDT	DELIVER COMMAND.
0259	REF	45 LAST 232		10,7664	4 0034 1		CS	OVCTR	
0260	REF	11 LAST 232		10,7665	0 6631 0		TC	OUT2SUB	
0261	REF	6 LAST 232		10,7666	3 0032 0		XCH	LPRUPT	GET WAITLIST DT LEFT BY GETDT .
0262	REF	30 LAST 232		10,7667	0 2173 0		TC	WAITLIST	

L IRIG PULSE-TORQUING ROUTINES

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0263	REF	2 LAST 231	10,7670	21560 1	CADR	GYROADV
0264	REF	23 LAST 232	10,7671	0 2256 1	TC	TASKOVER

L IRIG PULSE-TORQUING ROUTINES

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P0265 SUBROUTINES USED BY TASKS.

0266	REF	16	LAST	222	10,7672	3 0003 1	GETDT	XCH	LP	COMPUTE NUMBER OF 10 MS TICKS IT WILL TAKE THE PULSE TRAIN WHOSE MAGNITUDE IS IN OVCTR TO BE DELIVERED AT A RATE OF 3200 PPS.
0267	REF	7	LAST	232	10,7673	5 0032 0		TS	LPRUPT	
0268	REF	14	LAST	209	10,7674	3 4505 0		CAF	BIT10	
0269					10,7675	2 5777 1		EXTEND		
0270	REF	46	LAST	232	10,7676	4 0034 1		MP	OVCTR	
0271	REF	39	LAST	232	10,7677	6 5503 1		AD	TWO	INTERRUPT AND ROUND-OFF UNCERTAINTIES. LEAVE ANSWER IN LPRUPT.
0272	REF	8	LAST	234	10,7700	3 0032 0		XCH	LPRUPT	
0273					10,7701	2 5777 1		EXTEND		
0274	REF	96	LAST	232	10,7702	4 4516 0		MP	ONE	
0275	REF	139	LAST	228	10,7703	0 0001 0		TC	Q	
0276	REF	81	LAST	226	10,7704	3 5501 0	SETUPSUB	CAF	ZERO	SETS UP MISCELLANEOUS REGISTERS. USED BY OUT2SUB.
0277	REF	21	LAST	208	10,7705	5 0640 0		TS	RUPTREG2	
0278	REF	23	LAST	232	10,7706	4 0677 0		CS	CDUIND	
0279	REF	12	LAST	231	10,7707	7 4720 1		MASK	LOW7	KILL 2+ BIT.
0280	REF	16	LAST	208	10,7710	5 0637 0		TS	RUPTREG1	
0281					10,7711	6 0000 1		DOUBLE		
0282	REF	7	LAST	228	10,7712	6 0764 1		AD	LGYRO	
0283	REF	8	LAST	232	10,7713	5 0641 1		TS	RUPTREG3	USED FOR INDEXING GYROD SET.
0284	REF	140	LAST	234	10,7714	0 0001 0		TC	Q	
0285	REF	97	LAST	234	10,7715	3 4516 1	ENDGYRO1	CAF	ONE	SPLIT INTO TWO TASKS SO IT WONT LAST TOO LONG IN ANY ONE INTERRUPT.
0286	REF	31	LAST	232	10,7716	0 2173 0		TC	WAITLIST	
0287	REF	2	LAST	229	10,7717	21721 0		CADR	ENDGYRO	
0288	REF	24	LAST	233	10,7720	0 2256 1		TC	TASKOVER	
0289	REF	82	LAST	234	10,7721	3 5501 0	ENDGYRO	CAF	ZERO	SHOW THAT THE GYROS ARE NOW AVAILABLE.
0290	REF	8	LAST	234	10,7722	5 0764 1		TS	LGYRO	
02901	REF	10	LAST	206	10,7723	3 0007 0		XCH	IN3	RESTORE CDUIND BY CHECKING IMU MODE IMUCOARS, IMUATTC, IMUREENT MASK
02902	REF	11	LAST	234	10,7724	3 0007 0		XCH	IN3	
02903	REF	1			10,7725	7 7737 1		MASK	OCT122	
02904	REF	210	LAST	232	10,7726	1 0000 0		CCS	A	
02905	REF	83	LAST	234	10,7727	4 5501 1		CS	ZERO	TO +0 IF MODES ACTIVE
02906					10,7730	4 0000 0		COM		TO -0 IF INACTIVE
02907	REF	24	LAST	234	10,7731	5 0677 1		TS	CDUIND	
0291	REF	1			10,7732	3 7736 1		CAF	LNEWGYRO	WAKE UP ANY JOB WHICH MIGHT BE WAITING FOR THE GYROS (AT MOST ONE).
0292	REF	4	LAST	213	10,7733	0 2060 0		TC	JOBWAKE	
0293	REF	3	LAST	210	10,7734	0 5720 1		TC	POSTJUMP	RETURN TO ENDIMU SEQUENCE IN MAIN MODE BANK (CHECKS IMU AND CDU FAIL SIGNALS).
0294	REF	3	LAST	196	10,7735	30171 0		CADR	IMUFIND	
0295	REF	2	LAST	228	10,7736	31533 0	LNEWGYRO	CADR	NEWGYRO	STANDARD SLEEPING LOCATION FOR GYROBUSY.
02955					10,7737	00122 0	OCT122	OCT	122	
0296					10,7740	01001 1	FULLDT	DEC	5.13 E 2	

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 1

R0001 VERB PLEASE PERFORM AND VERB PLEASE MARK ----- FLASH SHOULD BE TURNED ON
 R0002 (FLASHON) BY ROUTINE PASTING EITHER UP. FLASH IS TURNED OFF BY ENTER OF
 R0003 PLEASE PERFORM, OR ENTER OF PLEASE MARK.

R0004 BOTH FLASHON AND FLASHOFF MUST NOT BE USED IN INTERRUPTED STATE.

R0005 PLEASE PERFORM VERB AND PLEASE MARK VERB-----
 R0006 PRESSING ENTER INDICATES ACTION REQUESTED HAS
 R0007 BEEN PERFORMED, AND DOES SAME RECALL AS A COMPLETED LOAD. OPERATOR
 R0008 SHOULD DO VERB PROCEED WITHOUT DATA IF WISHES NOT TO PERFORM THE
 R0009 REQUESTED ACTION.

R0010 FAN-OUT

0011 05,6000 SETLOC 12000

0012 05,6000 PINTEST EQUALS

A0013 THIS MUST = 05,6000 FOR PINBALL
 A0014 VERIFICATION. DO NOT MOVE WITHOUT
 INFORMING ALAN GREEN.

0015	REF	1	05,6000	0 6077	1	LST2FAN	TC	VBZERO	VB40 ZERO(USED WITH NOUN ICDU OR OCDU)
0016	REF	1	05,6001	0 6102	1		TC	VBCOARK	VB41 COARSE ALIGN(USED WITH NOUN ICDU OR OCDU)
A0017									
0018	REF	1	05,6002	0 6220	1		TC	IMUFINEK	VB42 FINE ALIGN IMU
0019	REF	1	05,6003	0 6253	0		TC	IMULOCKK	VB43 LOCK IMU
0020	REF	1	05,6004	0 6262	1		TC	IMUATTCK	VB44 SET IMU TO ATTITUDE CONTROL
0021	REF	1	05,6005	0 6316	0		TC	IMUREENK	VB45 SET IMU TO RE-ENTRY CONTROL
0022	REF	1	05,6006	0 6352	0		TC	IMUCORK	VB46 RETURN IMU TO COARSE ALIGN
0023	REF	1	05,6007	0 6075	0		TC	ALM/END	VB47 OPTICAL TRACKER ON(NOT IN USE YET)
0024	REF	1	05,6010	0 6437	1		TC	GOLOADLV	VB50 PLEASE PERFORM
0025	REF	2 LAST 235	05,6011	0 6437	1		TC	GOLOADLV	VB51 PLEASE MARK
0026	REF	1	05,6012	0 6415	1		TC	DOMKREJ	VB52 MARK REJECT (UNTIL BUTTON AVAIL.)
0027	REF	1	05,6013	0 6444	0		TC	RELO/IK	VV53 FREE (USED WITH NOUN ICDU OR OCDU)
0028	REF	1	05,6014	0 6454	1		TC	TORGGYRS	VB54 PULSE TORQUE GYROS
0029	REF	1	05,6015	0 6502	0		TC	ALINTIME	VB55 ALIGN TIME
0030	REF	1	05,6016	0 7014	0		TC	GOSHOSUM	VB56 PERFORMS BANKSUM
0031	REF	1	05,6017	0 6752	1		TC	SYSTEST	VB57 DO SYSTEM TEST
0032	REF	1	05,6020	0 6545	0		TC	PRESTAND	VB60 PREPARE FOR STANDBY
0033	REF	1	05,6021	0 6652	0		TC	POSTAND	VB61 RECOVER FROM STANDBY
0034			05,6022	3 0000	1		NOOP		ILLEGAL VERB.
0035			05,6023	3 0000	1		NOOP		ILLEGAL VERB.
0036			05,6024	3 0000	1		NOOP		ILLEGAL VERB.
0037			05,6025	3 0000	1		NOOP		ILLEGAL VERB.
0038			05,6026	3 0000	1		NOOP		ILLEGAL VERB.
0039			05,6027	3 0000	1		NOOP		ILLEGAL VERB.
0040	REF	2 LAST 235	05,6030	0 6075	0		TC	ALM/END	
0041	REF	1	05,6031	0 6043	0		TC	71JUMPTO	VERB 71 IS TFFMIN UPDATE
0042	REF	1	05,6032	0 6045	0		TC	ABRTJPTO	VERB 72 ABORTS

2

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 2

0043				05,6033	3 0000 1		NOOP		ILLEGAL VERB.
0044	REF	3	LAST 235	05,6034	0 6075 0		TC	ALM/END	
0045	REF	1		05,6035	0 7016 1		TC	EXTRA I/O	VB75 MANUAL INPUT/OUTPUT OPTIONS.
0046	REF	1		05,6036	0 6041 1		TC	76JUMPTO	VERB 76 IS STATE VECTOR UPDATE
0047	REF	4	LAST 234	05,6037	0 5720 1		TC	POSTJUMP	VERB 77 IS L/O TIME UPDATE
0048	REF	1		05,6040	26761 0		CADR	77UPDATE	
00481	REF	5	LAST 236	05,6041	0 5720 1	76JUMPTO	TC	POSTJUMP	
00482	REF	1		05,6042	26753 1		CADR	76UPDATE	
00483	REF	6	LAST 236	05,6043	0 5720 1	71JUMPTO	TC	POSTJUMP	
00484	REF	1		05,6044	26757 0		CADR	71UPDATE	
00485	REF	7	LAST 236	05,6045	0 5720 1	ABRTJPTO	TC	POSTJUMP	
00486	REF	2	LAST 129	05,6046	64477 1		CADR	ABORTRPT	
0049	REF	5	LAST 169	05,6047	3 4514 0	TESTXACT	CAF	BIT3	
0050	REF	1		05,6050	7 0645 1		MASK	EXTVBACT	
0051	REF	211	LAST 234	05,6051	1 0000 0		CCS	A	
0052	REF	1		05,6052	0 6062 0		TC	XACTALM	
0053	REF	6	LAST 236	05,6053	4 4514 1	XACT1	CS	BIT3	
0054				05,6054	2 0017 0		INHINT		
0055	REF	2	LAST 236	05,6055	7 0645 1		MASK	EXTVBACT	
0056	REF	7	LAST 236	05,6056	6 4514 0		AD	BIT3	
0057	REF	3	LAST 236	05,6057	5 0645 0		TS	EXTVBACT	
0058				05,6060	2 0016 1		RELINT		
0059	REF	141	LAST 234	05,6061	0 0001 0		TC	Q	
0060	REF	2	LAST 124	05,6062	0 3233 0	XACTALM	TC	FALTON	
0061	REF	17	LAST 223	05,6063	0 2124 1		TC	ENDOFJOB	
0062	REF	2	LAST 210	05,6064	0 3362 0	TERMEXTV	TC	FREEDSP	IF WE GET A TERMINATE INSTEAD OF A LOAD.
0063	REF	1		05,6065	0 6067 0	ENDEXTVB	TC	XACTO	
0064	REF	18	LAST 236	05,6066	0 2124 1		TC	ENDOFJOB	
0065	REF	8	LAST 236	05,6067	4 4514 1	XACTO	CS	BIT3	
0066				05,6070	2 0017 0		INHINT		
0067	REF	4	LAST 236	05,6071	7 0645 1		MASK	EXTVBACT	
0068	REF	5	LAST 236	05,6072	5 0645 0		TS	EXTVBACT	
0069				05,6073	2 0016 1		RELINT		
0070	REF	142	LAST 236	05,6074	0 0001 0		TC	Q	
0071	REF	3	LAST 236	05,6075	0 3233 0	ALM/END	TC	FALTON	
0072	REF	1		05,6076	0 6065 1		TC	ENDEXTVB	
0073	REF	1		05,6077	0 6105 0	VBZERO	TC	OP/INERT	
0074	REF	1		05,6100	0 6126 1		TC	IMUZEROK	RETURN HERE IF NOUN = ICDU(20)

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 3

0075 REF 4 LAST 236 05,6101 0 6075 0
A0076

TC ALM/END

RETURN HERE IF NOUN = OCDU(55)
(NOT IN USE YET)

0077 REF 2 LAST 236 05,6102 0 6105 0 VBCOARK

TC OP/INERT

0078 REF 1 05,6103 0 6142 0

TC IMUCOARK

RETURN HERE IF NOUN = ICDU(20)

0079 REF 1 05,6104 0 6367 0

TC OPTCOARK

RETURN HERE IF NOUN = OCDU(55)

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 4

P0080 SUBROUTINE FOR CHECKING GIVEN NOUN IF APPROPRIATE.

0081	REF 143	LAST 236	05,6105	3 0001 0	OP/INERT	XCH	Q	RETURNS TO L+1 IF NOUN=ICDU(20)
0082	REF 1		05,6106	5 0106 0		TS	WDRET	RETURNS TO L+2 IF NOUN = OCDU(55)
0083	REF 1		05,6107	4 6113 0		CS	NNICDU	ALARMS IF ANY OTHER NOUN
0084	REF 2	LAST 148	05,6110	6 0603 1		AD	NOUNREG	
0085	REF 212	LAST 236	05,6111	1 0000 0		CCS	A	
0086			05,6112	0 6116 1		TC	+4	NN G/ 20
0087			05,6113	00020 0	NNICDU	OCT	20	
0088	REF 5	LAST 237	05,6114	0 6075 0		TC	ALM/END	NN L/ 20
0089	REF 2	LAST 238	05,6115	0 0106 0		TC	WDRET	NN = 20
0090	REF 1		05,6116	4 6122 1		CS	NNOCDU	
0091	REF 3	LAST 238	05,6117	6 0603 1		AD	NOUNREG	
0092	REF 213	LAST 238	05,6120	1 0000 0		CCS	A	
0093	REF 6	LAST 238	05,6121	0 6075 0		TC	ALM/END	NN G/ 55
0094			05,6122	00055 1	NNOCDU	OCT	55	
0095	REF 7	LAST 238	05,6123	0 6075 0		TC	ALM/END	NN L/ 55
0096	REF 3	LAST 238	05,6124	2 0106 1		INDEX	WDRET	NN = 55
0097			05,6125	0 0001 0		TC	1	

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 5

P0098 KEYBOARD REQUEST TO ZERO IMU ENCODERS

0099	REF	1		05,6126	0 6047 1	IMUZEROK	TC	TESTXACT	ZERO ENCODERS.
0100	REF	6	LAST 226	05,6127	0 5654 0		TC	BANKCALL	
0101	REF	1		05,6130	30000 1		CADR	IMUZERO	
0102	REF	7	LAST 239	05,6131	0 5654 0		TC	BANKCALL	STALL
0103	REF	2	LAST 221	05,6132	30331 0		CADR	IMUSTALL	
0104				05,6133	0 6134 1		TC	+1	
0105				05,6134	2 0017 0	ENDMZERO	INHINT		
0106	REF	4	LAST 192	05,6135	4 5070 1		CS	ZLITBITS	TURN OFF ZEROING LIGHT TO SHOW COMPLETE.
0107	REF	55	LAST 200	05,6136	7 0723 0		MASK	DSPTAB +11D	
0108	REF	13	LAST 192	05,6137	6 4500 0		AD	BIT15	
0109	REF	56	LAST 239	05,6140	5 0723 1		TS	DSPTAB +11D	
0110	REF	2	LAST 236	05,6141	0 6065 1		TC	ENDEXTVB	

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 6

P0111 KEYBOARD REQUEST TO COARSE ALIGN THE IMU

0112	REF	2	LAST	239	05,6142	0	6047	1	IMUCOARK	TC	TESTXACT	COARSE ALIGN FROM KEYBOARD.
0113	REF	2	LAST	210	05,6143	0	3302	0		TC	GRABDSP	
0114	REF	2	LAST	210	05,6144	0	3310	0		TC	PREGBSY	
0115	REF	1			05,6145	3	6165	0		CAF	VNLODCDU	CALL FOR THETAD LOAD
0116	REF	4	LAST	212	05,6146	0	3100	0		TC	NVSUB	
0117	REF	2	LAST	211	05,6147	0	3315	0		TC	PRENVBSY	
0118	REF	2	LAST	211	05,6150	0	3136	0		TC	ENDIDLE	STALL WAITING FOR THE LOAD
0119	REF	1			05,6151	0	6064	0		TC	TERMEXTV	
0120	REF	1			05,6152	0	6167	1		TC	ICSDEL	PROCEED - ASK FOR INCREMENTAL LOAD.
0121	REF	1			05,6153	3	6166	0	ICORK2	CAF	IMUCOARV	RE-DISPLAY COARSE ALIGN VERB.
0122	REF	5	LAST	240	05,6154	0	3100	0		TC	NVSUB	
0123	REF	3	LAST	240	05,6155	0	3315	0		TC	PRENVBSY	
0124	REF	3	LAST	236	05,6156	0	3362	0		TC	FREEDSP	RELEASE THE DISPLAYS
0125	REF	8	LAST	239	05,6157	0	5654	0		TC	BANKCALL	CALL MODE SWITCHING PROG
0126	REF	1			05,6160		30104	1		CADR	IMUCOARS	
0127	REF	9	LAST	240	05,6161	0	5654	0		TC	BANKCALL	STALL
0128	REF	3	LAST	239	05,6162		30331	0		CADR	IMUSTALL	
0129	REF	3	LAST	239	05,6163	0	6065	1		TC	ENDEXTVB	
0130	REF	4	LAST	240	05,6164	0	6065	1		TC	ENDEXTVB	
0131					05,6165	02522	0		VNLODCDU	OCT	02522	
0132					05,6166	04100	1		IMUCOARV	OCT	04100	

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 7

P0133 PROVISION FOR COARSE ALIGN TO INCREMENTAL ANGLES.

0134	REF	1		05,6167	3 6216 1	ICSDEL	CAF	DELLOAD	
0135	REF	6 LAST 240		05,6170	0 3100 0		TC	NVSUB	REQUEST LOAD OF DELTA ICDU ANGLES.
0136	REF	4 LAST 240		05,6171	0 3315 0		TC	PRENVBSY	
0137	REF	3 LAST 240		05,6172	0 3136 0		TC	ENDIDLE	
0138	REF	2 LAST 240		05,6173	0 6064 0		TC	TERMEXTV	
0139	REF	1		05,6174	0 6153 0		TC	ICORK2	PROCEED WITHOUT DATA HERE TOO.
0140	REF	1		05,6175	0 6177 0		TC	INCLOOP	LOOP TO INCREMENT THETAD FROM DSPTM2.
0141	REF	2 LAST 241		05,6176	0 6153 0		TC	ICORK2	RE-DISPLAY COARSE ALIGN VERB.
0142	REF	144 LAST 238		05,6177	3 0001 0	INCLOOP	XCH	Q	INCREMENTS THETADS IN 2S COMPLEMENT FROM
0143	REF	244 LAST 228		05,6200	5 0115 1		TS	MPAC	THREE ANGLE INCREMENTS IN DSPTM2S.
0144	REF	1		05,6201	3 6217 0		CAF	LTHD+2	
0145	REF	104 LAST 227		05,6202	5 0077 1		TS	BUF	SET UP FOR CDUINC.
0146	REF	40 LAST 234		05,6203	3 5503 1		CAF	TWO	THREE TIMES THROUGH.
0147	REF	245 LAST 241		05,6204	5 0116 1	INCLOOP2	TS	MPAC +1	
0148	REF	214 LAST 238		05,6205	2 0000 0		INDEX	A	
0149	REF	3 LAST 210		05,6206	3 0621 1		XCH	DSPTM2	INCREMENT TO TEM2 FOR CDUINC.
0150	REF	10 LAST 240		05,6207	0 5654 0		TC	BANKCALL	
0151	REF	1		05,6210	30361 0		CADR	CDUINC	
0152	REF	105 LAST 241		05,6211	1 0077 0		CCS	BUF	
0153	REF	106 LAST 241		05,6212	5 0077 1		TS	BUF	
0154	REF	246 LAST 241		05,6213	1 0116 0		CCS	MPAC +1	
0155	REF	1		05,6214	0 6204 1		TC	INCLOOP2	
0156	REF	247 LAST 241		05,6215	0 0115 1		TC	MPAC	RETURN WHEN FINISHED.
0157				05,6216	02523 1	DELLOAD	OCT	02523	
0158	REF	11 LAST 195		05,6217	00702 1	LTHD+2	ADRES	THETAD +2	

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 8

P0159 KEYBOARD REQUEST TO FINE ALIGN AND GYRO TORQUE IMU

0160	REF	3	LAST	240	05,6220	0	6047	1	IMUFINEK	TC	TESTXACT	FINE ALIGN WITH GYRO TORQUING.
0161	REF	3	LAST	240	05,6221	0	3302	0		TC	GRABDSP	
0162	REF	3	LAST	240	05,6222	0	3310	0		TC	PREGBSY	
0163	REF	1			05,6223	3	6251	1		CAF	VNLODGYR	CALL FOR LOAD OF GYRO COMMANDS
0164	REF	7	LAST	241	05,6224	0	3100	0		TC	NVSUB	
0165	REF	5	LAST	241	05,6225	0	3315	0		TC	PRENVBSY	
0166	REF	4	LAST	241	05,6226	0	3136	0		TC	ENDIDLE	HOLD UP FOR THE DATA LOAD
0167	REF	3	LAST	241	05,6227	0	6064	0		TC	TERMEXTV	
0168					05,6230	0	6231	1		TC	+1	PROCEED WITHOUT A LOAD
0169	REF	1			05,6231	3	6252	1		CAF	IMUFINEV	RE-DISPLAY OUR OWN VERB
0170	REF	8	LAST	242	05,6232	0	3100	0		TC	NVSUB	
0171	REF	6	LAST	242	05,6233	0	3315	0		TC	PRENVBSY	
0172	REF	4	LAST	240	05,6234	0	3362	0		TC	FREEDSP	RELEASE DISPLAYS
0173	REF	11	LAST	241	05,6235	0	5654	0		TC	BANKCALL	CALL MODE SWITCH PROG
0174	REF	1			05,6236		30143	1		CADR	IMUFINE	
0175	REF	12	LAST	242	05,6237	0	5654	0		TC	BANKCALL	HIBERNATION
0176	REF	4	LAST	240	05,6240		30331	0		CADR	IMUSTALL	
0177	REF	5	LAST	240	05,6241	0	6065	1		TC	ENDEXTVB	
0178	REF	1			05,6242	3	6500	1		CAF	LGYROBIN	PINBALL LEFT COMMANDS IN OGC REGISTERS
0179	REF	13	LAST	242	05,6243	0	5654	0		TC	BANKCALL	
0180	REF	1			05,6244		31433	1		CADR	GYRODPNT	
0181	REF	14	LAST	242	05,6245	0	5654	0		TC	BANKCALL	WAIT FOR PULSES TO GET OUT.
0182	REF	5	LAST	242	05,6246		30331	0		CADR	IMUSTALL	
0183	REF	6	LAST	242	05,6247	0	6065	1		TC	ENDEXTVB	
0184	REF	7	LAST	242	05,6250	0	6065	1		TC	ENDEXTVB	
0185					05,6251	02567	1		VNLODGYR	OCT	02567	
0186					05,6252	04200	1		IMUFINEV	OCT	04200	FINE ALIGN VERB

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 9

P0187 KEYBOARD REQUEST TO LOCK THE IMU CDUS

0188	REF	4	LAST	242	05,6253	0 6047 1	IMULOCKK	TC	TESTXACT	
0189	REF	15	LAST	242	05,6254	0 5654 0		TC	BANKCALL	
0190	REF	1			05,6255	30205 0		CADR	IMULOCK	
0191	REF	16	LAST	243	05,6256	0 5654 0		TC	BANKCALL	STALL
0192	REF	6	LAST	242	05,6257	30331 0		CADR	IMUSTALL	
0193	REF	8	LAST	242	05,6260	0 6065 1		TC	ENDEXTVB	
0194	REF	9	LAST	243	05,6261	0 6065 1		TC	ENDEXTVB	

1206

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 10

P0195 KEYBOARD REQUEST TO PUT IMU IN ATTITUDE CONTROL MODE

0196	REF	5	LAST	243	05,6262	0	6047	1	IMUATTCK	TC	TESTXACT	ATTITUDE CONTROL.
0197	REF	4	LAST	242	05,6263	0	3302	0		TC	GRABDSP	
0198	REF	4	LAST	242	05,6264	0	3310	0		TC	PREGBSY	
0199	REF	2	LAST	241	05,6265	3	6216	1		CAF	DELLOAD	ASK FOR DELTA ANGLE LOAD.
0200	REF	9	LAST	242	05,6266	0	3100	0		TC	NVSUB	
0201	REF	7	LAST	242	05,6267	0	3315	0		TC	PRENVBSY	
0202	REF	5	LAST	242	05,6270	0	3136	0		TC	ENDIDLE	STALL WAITING FOR LOAD
0203	REF	4	LAST	242	05,6271	0	6064	0		TC	TERMEXTV	
0204	REF	1			05,6272	0	6306	1		TC	ATTCK2	PROCEED - ASK FOR ABSOLUTE ANGLES.
0205	REF	2	LAST	241	05,6273	0	6177	0		TC	INCLOOP	ADD INCREMENTS TO DESIRED ANGLES.
0206	REF	1			05,6274	3	6315	0	ATTCK2	CAF	IMUATTCKV	
0207	REF	10	LAST	244	05,6275	0	3100	0		TC	NVSUB	
0208	REF	8	LAST	244	05,6276	0	3315	0		TC	PRENVBSY	
0209	REF	5	LAST	242	05,6277	0	3362	0		TC	FREEDSP	LET THE DISPLAYS GO
0210	REF	17	LAST	243	05,6300	0	5654	0		TC	BANKCALL	CALL THE MODE SWITCH PROG
0211	REF	1			05,6301		30223	1		CADR	IMUATTC	
0212	REF	18	LAST	244	05,6302	0	5654	0		TC	BANKCALL	STALL
0213	REF	7	LAST	243	05,6303		30331	0		CADR	IMUSTALL	
0214	REF	10	LAST	243	05,6304	0	6065	1		TC	ENDEXTVB	
0215	REF	11	LAST	244	05,6305	0	6065	1		TC	ENDEXTVB	

R0216 PROVISIONS FOR ABSOLUTE LOAD FOR IMU CDUS IN ATTITUDE CONTROL.

0217	REF	2	LAST	240	05,6306	3	6165	0	ATTCK2	CAF	VNLODCDU	ASK FOR ABSOLUTE CDU ANGLES.
0218	REF	11	LAST	244	05,6307	0	3100	0		TC	NVSUB	
0219	REF	9	LAST	244	05,6310	0	3315	0		TC	PRENVBSY	
0220	REF	6	LAST	244	05,6311	0	3136	0		TC	ENDIDLE	
0221	REF	5	LAST	244	05,6312	0	6064	0		TC	TERMEXTV	
0222	REF	1			05,6313	0	6274	0		TC	ATTCK2	
0223	REF	2	LAST	244	05,6314	0	6274	0		TC	ATTCK2	SECOND PROCEED WITHOUT DATA.
0224					05,6315		04400	1	IMUATTCKV	OCT	04400	

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 11

P0225 KEYBOARD REQUEST TO PUT THE IMU IN RE-ENTRY CONTROL MODE

0226	REF	6	LAST	244	05,6316	0	6047	1	IMUREENK	TC	TESTXACT	RE-ENTRY.
0227	REF	5	LAST	244	05,6317	0	3302	0		TC	GRABDSP	
0228	REF	5	LAST	244	05,6320	0	3310	0		TC	PREGBSY	
0229	REF	3	LAST	244	05,6321	3	6216	1		CAF	DELOAD	LOAD INCREMENTAL ANGLES.
0230	REF	12	LAST	244	05,6322	0	3100	0		TC	NVSUB	
0231	REF	10	LAST	244	05,6323	0	3315	0		TC	PRENVBSY	
0232	REF	7	LAST	244	05,6324	0	3136	0		TC	ENDIDLE	STALL FOR THE LOAD
0233	REF	6	LAST	244	05,6325	0	6064	0		TC	TERMEXTV	
0234	REF	1			05,6326	0	6342	1		TC	REENTABS	PROCEED - ASK FOR ABSOLUTE LOAD.
0235	REF	3	LAST	244	05,6327	0	6177	0		TC	INCLOOP	
0236	REF	1			05,6330	3	6351	0	REENTK2	CAF	IMUREENV	RE-DISPLAY VERB.
0237	REF	13	LAST	245	05,6331	0	3100	0		TC	NVSUB	
0238	REF	11	LAST	245	05,6332	0	3315	0		TC	PRENVBSY	
0239	REF	6	LAST	244	05,6333	0	3362	0		TC	FREEDSP	LET THE DISPLAYS GO
0240	REF	19	LAST	244	05,6334	0	5654	0		TC	BANKCALL	CALL MODE SWITCH PROG
0241	REF	1			05,6335		30216	1		CADR	IMUREENT	
0242	REF	20	LAST	245	05,6336	0	5654	0		TC	BANKCALL	STALL
0243	REF	8	LAST	244	05,6337		30331	0		CADR	IMUSTALL	
0244	REF	12	LAST	244	05,6340	0	6065	1		TC	ENDEXTVB	
0245	REF	13	LAST	245	05,6341	0	6065	1		TC	ENDEXTVB	
0246	REF	3	LAST	244	05,6342	3	6165	0	REENTABS	CAF	VNLODCDU	REQUEST ABSOLUTE ANGLES.
0247	REF	14	LAST	245	05,6343	0	3100	0		TC	NVSUB	
0248	REF	12	LAST	245	05,6344	0	3315	0		TC	PRENVBSY	
0249	REF	8	LAST	245	05,6345	0	3136	0		TC	ENDIDLE	
0250	REF	7	LAST	245	05,6346	0	6064	0		TC	TERMEXTV	TERMINATE
0251	REF	1			05,6347	0	6330	1		TC	REENTK2	
0252	REF	2	LAST	245	05,6350	0	6330	1		TC	REENTK2	
0253					05,6351		04500	0	IMUREENV	OCT	04500	

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 12

P0254 KEYBOARD REQUEST TO RETURN THE IMU TO COARSE ALIGN

0255	REF	7	LAST	245	05,6352	0	6047	1	IMUCORK	TC	TESTXACT	BACK TO COARSE ALIGN (FROM FINE).
0256	REF	21	LAST	245	05,6353	0	5654	0		TC	BANKCALL	
0257	REF	1			05,6354		30134	1		CADR	IMURECOR	
0258	REF	22	LAST	246	05,6355	0	5654	0		TC	BANKCALL	
0259	REF	9	LAST	245	05,6356		30331	0		CADR	IMUSTALL	
0260	REF	14	LAST	245	05,6357	0	6065	1		TC	ENDEXTVB	
0261	REF	15	LAST	246	05,6360	0	6065	1		TC	ENDEXTVB	

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 13

P0262 KEYBOARD REQUEST TO ZERO OPTICS CDUS

0263	REF	23	LAST	246	05,6361	0	5654	0	OPTZEROK	TC	BANKCALL	CALL MODE PROG
0264	REF	1			05,6362		12367	0		CADR	OPTZERO	

0265	REF	24	LAST	247	05,6363	0	5654	0		TC	BANKCALL	STALL
0266	REF	1			05,6364		30327	1		CADR	OPTSTALL	
0267	REF	16	LAST	246	05,6365	0	6065	1		TC	ENDEXTVB	
0268	REF	17	LAST	247	05,6366	0	6065	1		TC	ENDEXTVB	

0269					05,6367				OPTZERO	=		INTERFACES NOT CURRENTLY WIRED *****
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L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 14

P0270 TEMPORARY ROUTINE TO RUN THE OPTICS CDUS FROM THE KEYBOARD

0271	REF	6	LAST	245	05,6367	0	3302	0	OPTCOARK	TC	GRABDSP	SNATCH THEM DISPLAYS
0272	REF	6	LAST	245	05,6370	0	3310	0		TC	PREGBSY	
0273	REF	1			05,6371	3	6406	0		CAF	VNLDOCDU	VERB-NOUN TO LOAD OPTICS CDUS
0274	REF	15	LAST	245	05,6372	0	3100	0		TC	NVSUB	
0275	REF	13	LAST	245	05,6373	0	3315	0		TC	PRENVBSY	
0276	REF	9	LAST	245	05,6374	0	3136	0		TC	ENDIDLE	WAIT FOR THE LOAD
0277	REF	8	LAST	245	05,6375	0	6064	0		TC	TERMEXTV	
0278					05,6376	0	6377	1		TC	+1	PROCEED
0279	REF	1			05,6377	3	6166	0		CAF	OPTCOARV	RE-DISPLAY OUR OWN VERB
0280	REF	16	LAST	248	05,6400	0	3100	0		TC	NVSUB	
0281	REF	14	LAST	248	05,6401	0	3315	0		TC	PRENVBSY	
0282	REF	7	LAST	245	05,6402	0	3362	0		TC	FREEDSP	LET IT GO
0283	REF	84	LAST	234	05,6403	3	5501	0		CAF	ZERO	
0284	REF	11	LAST	178	05,6404	5	0703	0		TS	OPTIND	SNATCH OPTICS
0285	REF	18	LAST	247	05,6405	0	6065	1		TC	ENDEXTVB	
0286					05,6406	02457	0		VNLDOCDU	OCT	02457	
0287	REF	2	LAST	240		05,6166			OPTCOARV	EQUALS	IMUCOARV	DIFFERENT NOUNS.

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 15

P0288 KEYBOARD REQUEST TO ACTIVATE THE OPTICAL STAR TRACKER

0289	REF	25	LAST	247	05,6407	0 5654 0	OPTTRONK	TC	BANKCALL
0290	REF	1			05,6410	12415 1		CADR	OPTTRKON

CALL MODE SWITCHER

0291	REF	26	LAST	249	05,6411	0 5654 0		TC	BANKCALL
0292	REF	2	LAST	247	05,6412	30327 1		CADR	OPTSTALL
0293	REF	19	LAST	248	05,6413	0 6065 1		TC	ENDEXTVB
0294	REF	20	LAST	249	05,6414	0 6065 1		TC	ENDEXTVB

STALL

0295 05,6415 OPTTRKON =

NOT AVAILABLE JUST NOW

0296					05,6415	2 0017 0	DOMKREJ	INHINT	
0297	REF	22	LAST	212	05,6416	4 0735 1		CS	MARKSTAT
0298	REF	15	LAST	234	05,6417	7 4505 1		MASK	BIT10
0299	REF	215	LAST	241	05,6420	1 0000 0		CCS	A
0300	REF	8	LAST	238	05,6421	0 6075 0		TC	ALM/END

DO 10 MS WAITLIST CALL TO MK REJECT PROG
MARK REJECT IS ENABLED ONLY IF BIT10
OF MARKSTAT = 1.

0301	REF	98	LAST	234	05,6422	3 4516 1		CAF	ONE
0302	REF	32	LAST	234	05,6423	0 2173 0		TC	WAITLIST
0303	REF	2	LAST	206	05,6424	30611 1		CADR	MKREJECT
0304	REF	5	LAST	212	05,6425	3 2261 0		CAF	H15
0305	REF	23	LAST	249	05,6426	7 0735 1		MASK	MARKSTAT
0306	REF	216	LAST	249	05,6427	1 0000 0		CCS	A
0307					05,6430	0 6432 1		TC	+2
0308	REF	19	LAST	236	05,6431	0 2124 1		TC	ENDOFJOB

(CALLED IN KEYRUPT WHEN BUTTON AVAIL.)
MARK REJECT ROUTINE WILL RE-PASTE VB51
IF ALL MARKS WERE IN.

0309					05,6432	2 0016 1		RELINT	
0310	REF	27	LAST	249	05,6433	0 5654 0		TC	BANKCALL
0311	REF	2	LAST	211	05,6434	14000 1		CADR	FLASHON
0312	REF	8	LAST	236	05,6435	0 5720 1		TC	POSTJUMP
0313	REF	2	LAST	209	05,6436	30755 0		CADR	REMKVB51

RE-DISPLAY VB 51 SINCE MORE MARKS
REQUIRED.

R0314 PLEASE PERFORM VERB AND PLEASE MARK VERB ----- PRESSING ENTER INDICATES
R0315 ACTION REQUESTED HAS BEEN PERFORMED, AND DOES SAME RECALL AS A COMPLETED
R0316 LOAD. OPERATOR SHOULD DO VB PROCEED WITHOUT DATA IF HE WISHES NOT TO
R0317 PERFORM THE REQUESTED ACTION.

0318	REF	28	LAST	249	05,6437	0 5654 0	GOLOADLV	TC	BANKCALL
0319	REF	1			05,6440	14003 1		CADR	FLASHOFF
0320	REF	2	LAST	236	05,6441	0 6067 0		TC	XACTO
0321	REF	9	LAST	249	05,6442	0 5720 1		TC	POSTJUMP
0322	REF	1			05,6443	16006 0		CADR	LOADLV1

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 16

P0323 KEYBOARD REQUEST TO RELEASE IMU OR OPTICS

0324	REF	3	LAST	237	05,6444	0	6105	0	RELO/IK	TC	OP/INERT	
0325	REF	1			05,6445	0	6451	1		TC	IMURELK	RETURN HERE IF IMU
0326	REF	85	LAST	248	05,6446	4	5501	1		CS	ZERO	RETURN HERE IF OPTICS
0327	REF	12	LAST	248	05,6447	5	0703	0		TS	OPTIND	
0328	REF	20	LAST	249	05,6450	0	2124	1		TC	ENDOFJOB	
0329	REF	86	LAST	250	05,6451	4	5501	1	IMURELK	CS	ZERO	
0330	REF	25	LAST	234	05,6452	5	0677	1		TS	CDUIND	
0331	REF	21	LAST	250	05,6453	0	2124	1		TC	ENDOFJOB	

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 17

P0332 KEYBOARD REQUEST TO PULSE TORQUE IRIGA

0333	REF	8	LAST	246	05,6454	0	6047	1	TORQGYRS	TC	TESTXACT	GYRO TORQUING WITH NO MODE-SWITCH.
0334	REF	7	LAST	248	05,6455	0	3302	0		TC	GRABDSP	
0335	REF	7	LAST	248	05,6456	0	3310	0		TC	PREGBSY	
0336	REF	2	LAST	242	05,6457	3	6251	1		CAF	VNLODGYR	
0337	REF	17	LAST	248	05,6460	0	3100	0		TC	NVSUB	
0338	REF	15	LAST	248	05,6461	0	3315	0		TC	PRENVBSY	
0339	REF	10	LAST	248	05,6462	0	3136	0		TC	ENDIDLE	
0340	REF	9	LAST	248	05,6463	0	6064	0		TC	TERMEXTV	
0341					05,6464	0	6465	0		TC	+1	
0342	REF	1			05,6465	3	6501	0		CAF	TORQGYRV	RE-DISPLAY OUR OWN VERB
0343	REF	18	LAST	251	05,6466	0	3100	0		TC	NVSUB	
0344	REF	16	LAST	251	05,6467	0	3315	0		TC	PRENVBSY	
0345	REF	8	LAST	248	05,6470	0	3362	0		TC	FREEDSP	
0346	REF	2	LAST	242	05,6471	3	6500	1		CAF	LGYROBIN	
0347	REF	29	LAST	249	05,6472	0	5654	0		TC	BANKCALL	
0348	REF	2	LAST	242	05,6473		31433	1		CADR	GYRODPNT	
0349	REF	30	LAST	251	05,6474	0	5654	0		TC	BANKCALL	WAIT FOR PULSES TO GET OUT.
0350	REF	10	LAST	246	05,6475		30331	0		CADR	IMUSTALL	
0351	REF	21	LAST	249	05,6476	0	6065	1		TC	ENDEXTVB	
0352	REF	22	LAST	251	05,6477	0	6065	1		TC	ENDEXTVB	
0353	REF	1			05,6500	01520	1		LGYROBIN	ADRES	OGC	
0354					05,6501	05400	0		TORQGYRV	OCT	05400	

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 18

P0355 ALIGN TIME

0356	REF	1		05,6502	3 6544 1	ALINTIME	CAF	VNLODDT	USES NVSUBMON. DOES NOT TEST DSPLOCK.
0357	REF	2	LAST 212	05,6503	5 0110 1		TS	NVTEMP	DOES NOT KILL MONITOR.
0358	REF	1		05,6504	0 3121 0		TC	NVSUBMON	
0359	REF	22	LAST 250	05,6505	0 2124 1		TC	ENDOFJOB	IN CASE OF ALARM IN LOAD REQUEST SET UP.
0360	REF	11	LAST 251	05,6506	0 3136 0		TC	ENDIDLE	
0361	REF	23	LAST 252	05,6507	0 2124 1		TC	ENDOFJOB	TERMINATE
0362	REF	24	LAST 252	05,6510	0 2124 1		TC	ENDOFJOB	PROCEED WITHOUT DATA
0363				05,6511	2 0017 0	UPDATIME	INHINT		DELTA TIME IS IN DSPTIME1, +1.
0364	REF	87	LAST 250	05,6512	3 5501 0		CAF	ZERO	
0365	REF	248	LAST 241	05,6513	5 0117 0		TS	MPAC +2	NEEDED FOR TP AGREE
0366	REF	6	LAST 222	05,6514	3 0036 1		XCH	TIME1	LO ORDER TIME
0367	REF	6	LAST 210	05,6515	6 0617 1		AD	DSPTIME1 +1	
0368	REF	249	LAST 252	05,6516	5 0116 1		TS	MPAC +1	
0369	REF	88	LAST 252	05,6517	3 5501 0		CAF	ZERO	
0370	REF	7	LAST 252	05,6520	6 0616 0		AD	DSPTIME1	
0371	REF	4	LAST 191	05,6521	6 0035 1		AD	TIME2	HI ORDER TIME
0372	REF	250	LAST 252	05,6522	3 0115 1		XCH	MPAC	
0373	REF	31	LAST 251	05,6523	0 5654 0		TC	BANKCALL	
0374	REF	5	LAST 226	05,6524	07154 0		CADR	TPAGREE	
0375	REF	251	LAST 252	05,6525	3 0115 1		XCH	MPAC	
0376	REF	5	LAST 252	05,6526	3 0035 1		XCH	TIME2	
0377	REF	252	LAST 252	05,6527	3 0116 1		XCH	MPAC +1	
0378	REF	7	LAST 252	05,6530	3 0036 1		XCH	TIME1	
0379	REF	217	LAST 249	05,6531	1 0000 0		CCS	A	
0380				05,6532	0 6534 0		TC	+2	
0381	REF	1		05,6533	0 6542 1		TC	ENDALINE	
0382	REF	99	LAST 249	05,6534	3 4516 1		CAF	ONE	TIME1 WAS INCREMENTED SINCE PICKUP
0383	REF	8	LAST 252	05,6535	6 0036 1		AD	TIME1	
0384	REF	9	LAST 252	05,6536	5 0036 1		TS	TIME1	
0385	REF	2	LAST 252	05,6537	0 6542 1		TC	ENDALINE	
0386	REF	6	LAST 252	05,6540	6 0035 1		AD	TIME2	
0387	REF	7	LAST 252	05,6541	3 0035 1		XCH	TIME2	
0388				05,6542	2 0016 1	ENDALINE	RELINT		
0389	REF	25	LAST 252	05,6543	0 2124 1		TC	ENDOFJOB	
0390				05,6544	02124 1	VNLODDT	OCT	02124	V/N FOR LOAD DELTA TIME

L EXTENDED VERBS FOR MODING

USER'S OWN PAGE NO. 19

P0391 PREPARE FOR STANDBY OPERATION

R0392 PRESTAND PREPARES FOR STANDBY BY SNAPSHOTTING IN1, TIME1, TIME2 AS SOON
 R0393 AS IN1 CHANGES. IT DOES THIS BY CONTINUOUS WAITLIST REQUESTS UNTIL A
 R0394 CHANGE IN IN1 IS DETECTED.

R0395 POSTAND RECOVERS TIME AFTER STANDBY. IT WAITS FOR A CHANGE IN IN1 (JUST
 R0396 AS PRESTAND DOES), THEN COMPUTES THE DIFFERENCE BETWEEN IN1 VALUES (FULL
 R0397 16 BITS), ADDS THIS TO THE PREVIOUSLY SNAPSHOTTED VALUES OF TIME1, TIME2
 R0398 AND PLACES THIS NEW TIME INTO TIME1, TIME2 COUNTERS.

R0399	BIT1 OF IN1LOSAV = LAST VALUE OF BIT1 OF IN1										
0400					05,6545	2 0017 0	PRESTAND	INHINT		PREPARE TIME FOR STANDBY	
0401	REF	100	LAST	252	05,6546	3 4516 1		CAF	ONE		
0402	REF	33	LAST	249	05,6547	0 2173 0		TC	WAITLIST		
0403	REF	1			05,6550	12552 0		CADR	PRESTBY		
0404	REF	26	LAST	252	05,6551	0 2124 1		TC	ENDOFJOB		
0405	REF	1			05,6552	3 0005 1	PRESTBY	XCH	IN1	CALLED BY WAITLIST	
0406	REF	8	LAST	192	05,6553	7 4516 0		MASK	BIT1	PUT BIT1 OF IN1 INTO BIT1 OF IN1LOSAV	
0407	REF	9	LAST	234	05,6554	5 0032 0		TS	LPRUPT		
0408	REF	9	LAST	253	05,6555	4 4516 0		CS	BIT1		
0409	REF	1			05,6556	7 1103 0		MASK	IN1LOSAV		
0410	REF	10	LAST	253	05,6557	6 0032 0		AD	LPRUPT		
0411	REF	2	LAST	253	05,6560	5 1103 1		TS	IN1LOSAV		
A0412										CALLED BY WAITLIST EVERY 10 MSEC	
0413	REF	2	LAST	253	05,6561	3 0005 1	PRESTBY1	XCH	IN1	UNTIL A CHANGE IN IN1 IS DETECTED.	
0414	REF	145	LAST	241	05,6562	3 0001 0		XCH	Q	PUT ALL 16 BITS OF IN1 INTO Q	
0415	REF	10	LAST	252	05,6563	4 0036 0		CS	TIME1	SNAPSHOT TIME1	
0416	REF	1			05,6564	3 1101 0		XCH	TIME1SAV		
0417	REF	8	LAST	252	05,6565	4 0035 0		CS	TIME2	SNAPSHOT TIME2	
0418	REF	1			05,6566	3 1100 1		XCH	TIME2SAV		
0419	REF	146	LAST	253	05,6567	3 0001 0		XCH	Q	PUT ALL 16 BITS OF IN1 INTO A	
0420	REF	1			05,6570	0 6603 1		TC	IN1LOOK		
0421	REF	1			05,6571	0 6577 1		TC	PRESTBY2	RETURNS HERE IF NO CHANGE IN IN1	
0422	REF	1			05,6572	3 0572 1		XCH	IN1HITEM	RETURNS HERE IF IN1 HAS CHANGED	
0423	REF	1			05,6573	5 1102 0		TS	IN1HISAV		
0424	REF	1			05,6574	3 0573 0		XCH	IN1LOTEM	DONE WITH BIT1 OF IN1LOSAV, DONT PROTECT	
0425	REF	3	LAST	253	05,6575	5 1103 1		TS	IN1LOSAV		
0426	REF	25	LAST	234	05,6576	0 2256 1		TC	TASKOVER		
0427	REF	101	LAST	253	05,6577	3 4516 1	PRESTBY2	CAF	ONE	PERPETUATES WAITLIST REQUEST EVERY	
0428	REF	34	LAST	253	05,6600	0 2173 0		TC	WAITLIST	10 MSEC UNTIL IN1 CHANGES.	
0429	REF	1			05,6601	12561 0		CADR	PRESTBY1		
0430	REF	26	LAST	253	05,6602	0 2256 1		TC	TASKOVER		

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R0431 IN1LOOK RETURNS TO L+1 IF IN1 HAS NOT CHANGED SINCE LAST EXAMINATION.
 R0432 IT RETURNS TO L+2 IF IN1 HAS CHANGED SINCE LAST EXAMINATION, WITH
 R0433 BITS 16-8 OF IN1 IN BITS 9-1 OF IN1HITEM, AND BITS 7-1 OF IN1
 R0434 IN BITS 14-8 OF IN1LOTEM.

0435	REF	2	LAST	253	05,6603	5	0573	0	IN1LOOK	TS	IN1LOTEM	
0436	REF	2	LAST	172	05,6604	3	5504	0		CAF	NEGO	
0437	REF	2	LAST	253	05,6605	5	0572	1		TS	IN1HITEM	PUT +1 FOR OF, -1 FOR UF, -0 FOR NEITHER
0438	REF	147	LAST	253	05,6606	3	0001	0		XCH	Q	
0439	REF	1			05,6607	5	0574	1		TS	LOOKRET	
0440	REF	10	LAST	253	05,6610	3	4516	1		CAF	BIT1	
0441	REF	3	LAST	254	05,6611	7	0573	1		MASK	IN1LOTEM	
0442	REF	11	LAST	253	05,6612	5	0032	0		TS	LPRUPT	NEW VALUE OF BIT1 OF IN1
0443	REF	11	LAST	254	05,6613	3	4516	1		CAF	BIT1	
0444	REF	4	LAST	253	05,6614	7	1103	0		MASK	IN1LOSAV	LAST VALUE OF BIT1 OF IN1
0445					05,6615	2	5777	1		EXTEND		
0446	REF	12	LAST	254	05,6616	6	0032	0		SJ	LPRUPT	
0447	REF	218	LAST	252	05,6617	1	0000	0		CCS	A	
0448	REF	1			05,6620	0	6624	1		TC	IN1PREP	IN1 HAS CHANGED
0449	REF	22	LAST	176	05,6621	0	3062	0		TC	CCSHOLE	
0450	REF	2	LAST	254	05,6622	0	6624	1		TC	IN1PREP	IN1 HAS CHANGED
0451	REF	2	LAST	254	05,6623	0	0574	1		TC	LOOKRET	IN1 HAS NOT CHANGED. RETURN TO L+1.
0452	REF	17	LAST	234	05,6624	3	0003	1	IN1PREP	XCH	LP	
0453	REF	13	LAST	254	05,6625	5	0032	0		TS	LPRUPT	STORE LP
0454	REF	4	LAST	254	05,6626	3	0573	0		XCH	IN1LOTEM	
0455					05,6627	2	5777	1		EXTEND		
0456	REF	6	LAST	181	05,6630	4	4507	0		MP	BIT8	SHIFTS RIGHT 7
0457	REF	3	LAST	254	05,6631	3	0572	1		XCH	IN1HITEM	PUTS BITS7-1 OF IN1 INTO BITS 14-8 OF LP
0458	REF	219	LAST	254	05,6632	1	0000	0		CCS	A	PUTS BITS14-8 OF IN1 INTO BITS7-1 OF A
0459	REF	7	LAST	254	05,6633	3	4507	1		CAF	BIT8	PUTS BIT16 OF IN1 INTO BIT9 OF A
0460					05,6634	0	6636	1		TC	+2	
0461	REF	8	LAST	254	05,6635	4	4507	0		CS	BIT8	
0462	REF	4	LAST	254	05,6636	6	0572	1		AD	IN1HITEM	PUTS BIT15 OF IN1 INTO BIT8 OF A
0463	REF	7	LAST	211	05,6637	7	4607	0		MASK	LOW9	
0464	REF	5	LAST	254	05,6640	5	0572	1		TS	IN1HITEM	
0465	REF	18	LAST	254	05,6641	3	0003	1		XCH	LP	
0466	REF	1			05,6642	7	6651	1		MASK	B14-B8	BIT14 THRU BIT8
0467	REF	5	LAST	254	05,6643	5	0573	0		TS	IN1LOTEM	
0468	REF	12	LAST	254	05,6644	3	4516	1		CAF	BIT1	
0469					05,6645	2	5777	1		EXTEND		
0470	REF	14	LAST	254	05,6646	4	0032	1		MP	LPRUPT	RESTORE LP
0471	REF	3	LAST	254	05,6647	2	0574	0		INDEX	LOOKRET	
0472					05,6650	0	0001	0		TC	1	RETURN TO L+2
0473					05,6651	37600	0		B14-B8	OCT	37600	

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P0474 RECOVER FROM STANDBY OPERATION

Address	Ref	Line	Label	Address	Line	Label	Verb	Verb	Verb	Description
0475				05,6652	2 0017 0	POSTAND	INHINT			RECOVER TIME AFTER STANDBY
0476	REF 102	LAST 253		05,6653	3 4516 1		CAF	ONE		
0477	REF 35	LAST 253		05,6654	0 2173 0		TC	WAITLIST		
0478	REF 1			05,6655	12657 0		CADR	POSTBY		
0479	REF 27	LAST 253		05,6656	0 2124 1		TC	ENDOFJOB		
0480	REF 3	LAST 253		05,6657	3 0005 1	POSTBY	XCH	IN1		CALLED BY WAITLIST
0481	REF 13	LAST 254		05,6660	7 4516 0		MASK	BIT1		PUT BIT1 OF IN1 INTO BIT1 OF IN1LOSAV
0482	REF 15	LAST 254		05,6661	5 0032 0		TS	LPRUPT		
0483	REF 14	LAST 255		05,6662	4 4516 0		CS	BIT1		
0484	REF 5	LAST 254		05,6663	7 1103 0		MASK	IN1LOSAV		
0485	REF 16	LAST 255		05,6664	6 0032 0		AD	LPRUPT		
0486	REF 6	LAST 255		05,6665	5 1103 1		TS	IN1LOSAV		
A0487										CALLED BY WAITLIST EVERY 10 MSEC UNTIL
0488	REF 4	LAST 255		05,6666	3 0005 1	POSTBY1	XCH	IN1		A CHANGE IN IN1 IS DETECTED.
0489	REF 148	LAST 254		05,6667	3 0001 0		XCH	Q		PUT ALL 16 BITS OF IN1 INTO Q
0490	REF 89	LAST 252		05,6670	3 5501 0		CAF	ZERO		
0491	REF 11	LAST 253		05,6671	5 0036 1		TS	TIME1		ZERO TIME1, TIME2 IN ANTICIPATION
0492	REF 9	LAST 253		05,6672	5 0035 1		TS	TIME2		OF UPDATING.
0493	REF 149	LAST 255		05,6673	3 0001 0		XCH	Q		PUT ALL 16 BITS OF IN1 INTO A
0494	REF 2	LAST 253		05,6674	0 6603 1		TC	IN1LOOK		
0495	REF 1			05,6675	0 6724 0		TC	POSTBY2		RETURNS HERE IF IN1 HAS NOT CHANGED
0496	REF 15	LAST 255		05,6676	4 4516 0		CS	BIT1		RETURNS HERE IF IN1 HAS CHANGED
0497	REF 7	LAST 255		05,6677	7 1103 0		MASK	IN1LOSAV		FORM DP DIFFERENCE OF C(IN1) TAKEN AFTER
0498				05,6700	4 0000 0		COM			STANDBY MINUS C(IN1) TAKEN BEFORE
0499	REF 6	LAST 254		05,6701	6 0573 0		AD	IN1LOTEM		STANDBY. THIS DIFF IS IN THE BITS
0500	REF 1			05,6702	5 1105 1		TS	IN1LODIF		CORRESPONDING TO TIME1, TIME2.
0501	REF 90	LAST 255		05,6703	3 5501 0		CAF	ZERO		
0502	REF 6	LAST 254		05,6704	6 0572 1		AD	IN1HITEM		
0503				05,6705	2 5777 1		EXTEND			
0504	REF 2	LAST 253		05,6706	6 1102 0		SU	IN1HISAV		
0505	REF 220	LAST 254		05,6707	1 0000 0		CCS	A		
0506	REF 103	LAST 255		05,6710	6 4516 1		AD	ONE		DIFF IS +
0507				05,6711	0 6713 1		TC	+2		
0508	REF 1			05,6712	0 6720 1		TC	DIFFNEG		DIFF IS -NZ, ADD BIT10 TO HI PART
0509	REF 1			05,6713	5 1104 0	DIFFCOM	TS	IN1HIDIF		
0510	REF 1			05,6714	3 2166 1		CAF	PRI033		GO TO EXEC TO FINISH UP
0511	REF 9	LAST 217		05,6715	0 2052 1		TC	NOVAC		GO TO EXEC TO FINISH UP
0512	REF 1			05,6716	12730 0		CADR	POSTBY3		
0513	REF 27	LAST 253		05,6717	0 2256 1		TC	TASKOVER		
0514	REF 104	LAST 255		05,6720	6 4516 1	DIFFNEG	AD	ONE		
0515				05,6721	4 0000 0		COM			
0516	REF 16	LAST 249		05,6722	6 4505 0		AD	BIT10		
0517	REF 1			05,6723	0 6713 1		TC	DIFFCOM		
0518	REF 105	LAST 255		05,6724	3 4516 1	POSTBY2	CAF	ONE		PERPETUATES WAITLIST REQUEST EVERY
0519	REF 36	LAST 255		05,6725	0 2173 0		TC	WAITLIST		10 MSEC UNTIL IN1 CHANGES.

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0520	REF	1		05,6726	12666	1		CADR	POSTBY1	
0521	REF	28	LAST 255	05,6727	0	2256	1	TC	TASKOVER	
0522	REF	2	LAST 253	05,6730	4	1101	1	POSTBY3	CS	TIME1SAV
0523	REF	2	LAST 255	05,6731	6	1105	1		AD	IN1LODIF
0524	REF	253	LAST 252	05,6732	5	0116	1		TS	MPAC +1
0525	REF	91	LAST 255	05,6733	3	5501	0		CAF	ZERO
0526	REF	2	LAST 255	05,6734	6	1104	0		AD	IN1HIDIF
0527				05,6735	2	5777	1		EXTEND	
0528	REF	2	LAST 253	05,6736	6	1100	1		SJ	TIME2SAV
0529	REF	254	LAST 256	05,6737	5	0115	1		TS	MPAC
0530				05,6740	0	6741	0		TC	+1
0531	REF	92	LAST 256	05,6741	3	5501	0		CAF	ZERO
0532	REF	255	LAST 256	05,6742	5	0117	0		TS	MPAC +2
0533	REF	32	LAST 252	05,6743	0	5654	0		TC	BANKCALL
0534	REF	6	LAST 252	05,6744		07154	0		CADR	TPAGREE
0535	REF	256	LAST 256	05,6745	3	0116	1		XCH	MPAC +1
0536	REF	8	LAST 252	05,6746	5	0617	1		TS	DSPTM1 +1
0537	REF	257	LAST 256	05,6747	3	0115	1		XCH	MPAC
0538	REF	9	LAST 256	05,6750	5	0616	0		TS	DSPTM1
0539	REF	1		05,6751	0	6511	1		TC	UPDATIME

CALLED BY EXEC
TIME WAS STORED COMP

TIME WAS STORED COMP

JUST IN CASE OF OF
MAKES TPAGREE SAFE FOR DPAGREE

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P0540 SELECT AND INITIATE DESIRED SYSTEM TEST PROGRAM.

0541	REF	8	LAST	251	05,6752	0	3302	0	SYSTEST	TC	GRABDSP	FIXED BY THE PHANTI
0542	REF	8	LAST	251	05,6753	0	3310	0		TC	PREGBSY	
0543	REF	7	LAST	168	05,6754	1	0612	0		CCS	MODREG	MUST NOT BE RUNNING ANYTHING.
0544	REF	1			05,6755	0	7146	0		TC	XVBOUT	
0545	REF	2	LAST	169	05,6756	0	2362	1		TC	NEWMODE	FOR SYSTEM TEST.
0546					05,6757		00007	0		OCT	07	
0547	REF	1			05,6760	3	7013	1	REDO	CAF	LQPL	ASK FOR TEST OPTION (1 - 7).
0548	REF	258	LAST	256	05,6761	5	0117	0		TS	MPAC +2	
0549	REF	1			05,6762	3	7012	0		CAF	TESTNV	
0550	REF	19	LAST	251	05,6763	0	3100	0		TC	NVSUB	
0551	REF	17	LAST	251	05,6764	0	3315	0		TC	PRENVBSY	
0552	REF	12	LAST	252	05,6765	0	3136	0		TC	ENDIDLE	
0553	REF	2	LAST	257	05,6766	0	7146	0		TC	XVBOUT	
0554	REF	1			05,6767	0	6760	0		TC	REDO	
0555					05,6770	2	0017	0		INHINT		
0556	REF	2	LAST	124	05,6771	3	4501	1		CAF	PRI020	
0557	REF	6	LAST	170	05,6772	0	2046	1		TC	FINDVAC	
0558	REF	1			05,6773		12775	1		CADR	TSELECT	
0559	REF	28	LAST	255	05,6774	0	2124	1		TC	ENDOFJOB	LEAVING DISPLAY GRABBED FOR SYSTEM TEST.
0560	REF	8	LAST	232	05,6775	3	5362	0	TSELECT	CAF	SEVEN	
0561	REF	1			05,6776	7	1225	1		MASK	QPLACE	SAFETY PLAY.
0562	REF	221	LAST	255	05,6777	2	0000	0		INDEX	A	
0563	REF	1			05,7000	3	7002	1		CAF	TESTCADR	
0564	REF	3	LAST	123	05,7001	0	5723	1		TC	BANKJUMP	
0565	REF	9	LAST	249	05,7002	12075	0		TESTCADR	CADR	ALM/END	0 ILLEGAL.
0566	REF	1			05,7003	24511	1			CADR	GYDRFT	1 GYRO DRIFT TEST.
0567	REF	1			05,7004	24606	1			CADR	ACCELTST	2 PIPA SCALE FACTOR DETERMINATION.
0568	REF	1			05,7005	24000	1			CADR	ALGNTST	3 IMU ALIGNMENT TEST
0569	REF	1			05,7006	24372	1			CADR	IMUCHK	4 IMU CHECK.
0570	REF	1			05,7007	24203	0			CADR	GYROTORK	5 GYRO TORQUING TEST.
0571	REF	1			05,7010	23421	1			CADR	CCHK	6 C RELAY CHECK.
0572	REF	1			05,7011	23534	1			CADR	DHECK	7 DSKY CHECK.
0573					05,7012	02101	0		TESTNV	OCT	2101	
0574	REF	2	LAST	257	05,7013	01225	0		LQPL	ADRES	QPLACE	
0575	REF	10	LAST	249	05,7014	0	5720	1	GOSHOSUM	TC	POSTJUMP	START ROUTINE TO DISPLAY SUM OF EACH
0576	REF	1			05,7015	23025	1			CADR	SHOWSUM	BANK ON DSKY

L EXTENDED VERBS FOR MODING

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P0577 VERB 75 ALLOWS THE GROUND TO PERFORM SOME I/O OPERATIONS WITH THE DSKY. FOUR OPTIONS ARE
 R0579 MECHANIZED FOR FLIGHT 501 (WITH MAJOR MODES DURING WHICH ALLOWED) -

R0580	1	GIMBAL MOTOR POWER ON	MAJOR MODES 0X.
R0581	2	GIMBAL MOTOR POWER OFF	MAJOR MODES 0X.
R0582	3	LIFT-OFF (AND GUIDANCE RELEASE).	MAJOR MODES 02 AND 04.
R0584	4	S4B-SM SEPARATE	MAJOR MODE 14.
R0585	5	FDAI ALIGN.	MAJOR MODES 0X.

0586	REF	9 LAST 257	05,7016	0 3302 0	EXTRA I/O TC	GRABDSP	
0587	REF	9 LAST 257	05,7017	0 3310 0	TC	PREGBSY	
0588	REF	1	05,7020	3 7143 0	75RELOAD CAF	LV75TEMP	ASK FOR FUNCTION NUMBER.
0589	REF	259 LAST 257	05,7021	5 0117 0	TS	MPAC +2	
0590	REF	1	05,7022	3 7144 1	CAF	STATENV	
0591	REF	20 LAST 257	05,7023	0 3100 0	TC	NVSUB	
0592	REF	18 LAST 257	05,7024	0 3315 0	TC	PRENVBSY	
0593	REF	13 LAST 257	05,7025	0 3136 0	TC	ENDIDLE	
0594	REF	3 LAST 257	05,7026	0 7146 0	TC	XVBOUT	
0595	REF	1	05,7027	0 7020 1	TC	75RELOAD	

0596	REF	1	05,7030	1 0616 1	CCS	V75TEMP	MAKE SURE FUNCTION NUMBER IS LEGIT.
0597			05,7031	0 7035 0	TC	+4	
0598	REF	2 LAST 258	05,7032	0 7020 1	TC	75RELOAD	
0599	REF	3 LAST 258	05,7033	0 7020 1	TC	75RELOAD	
0600	REF	4 LAST 258	05,7034	0 7020 1	TC	75RELOAD	

0601	REF	1	05,7035	7 7141 0	+4	MASK	75HI12
0602	REF	222 LAST 257	05,7036	1 0000 0	CCS	A	
0603	REF	5 LAST 258	05,7037	0 7020 1	TC	75RELOAD	

0604	REF	2 LAST 258	05,7040	2 0616 1	INDEX	V75TEMP	
0605			05,7041	0 7041 0	TC	+0	
0606	REF	1	05,7042	0 7066 0	TC	75FN1	
0607	REF	1	05,7043	0 7075 1	TC	75FN2	
0608	REF	1	05,7044	0 7104 0	TC	75FN3	

0609	REF	1	05,7045	0 7052 1	TC	75FN4	
0610	REF	1	05,7046	0 7124 1	TC	75FN5	
0611	REF	6 LAST 258	05,7047	0 7020 1	TC	75RELOAD	
0612	REF	7 LAST 258	05,7050	0 7020 1	TC	75RELOAD	
0613	REF	8 LAST 258	05,7051	0 7020 1	TC	75RELOAD	

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P0614 FUNCTION 4 - DO S4B SEPARATE.

0615	REF	3 LAST 169	05,7052	0 2346 1	75FN4	TC	CHECKMM	NO MODE 13 PLANNED.
0616			05,7053	00014 1		OCT	14	
0617	REF	1	05,7054	0 7145 0		TC	MALAPROP	
0618			05,7055	2 0017 0			INHINT	
0619	REF	9 LAST 254	05,7056	3 4507 1		CAF	BIT8	
0620	REF	7 LAST 221	05,7057	7 0646 1		MASK	FLAGWRD1	
0621	REF	223 LAST 258	05,7060	1 0000 0		CCS	A	
0622	REF	4 LAST 258	05,7061	0 7146 0		TC	XVBOUT	SWITCH SET - FUNCTION ALREADY DONE.
0623	REF	3 LAST 170	05,7062	3 2160 1		CAF	PRI025	
0624	REF	7 LAST 257	05,7063	0 2046 1		TC	FINDVAC	
0625	REF	2 LAST 170	05,7064	64336 0		CADR	S4BSMSEP	
0628	REF	5 LAST 259	05,7065	0 7146 0		TC	XVBOUT	

R0629 FUNCTION 1 - GIMBAL MOTOR POWER ON - DURING PRE-LAUNCH ONLY.

0630	REF	1	05,7066	3 7140 0	75FN1	CAF	75MASK	
0631	REF	8 LAST 257	05,7067	7 0612 0		MASK	MODREG	
0632	REF	224 LAST 259	05,7070	1 0000 0		CCS	A	
0633	REF	2 LAST 259	05,7071	0 7145 0		TC	MALAPROP	
0634	REF	1	05,7072	0 3373 0		TC	RELAYON	
0635			05,7073	40200 1		OCT	40200	
0636	REF	6 LAST 259	05,7074	0 7146 0		TC	XVBOUT	

R0637 FUNCTION 2 - GIMBAL MOTOR POWER OFF - DURING PRE-LAUNCH ONLY.

0638	REF	2 LAST 259	05,7075	3 7140 0	75FN2	CAF	75MASK	
0639	REF	9 LAST 259	05,7076	7 0612 0		MASK	MODREG	
0640	REF	225 LAST 259	05,7077	1 0000 0		CCS	A	
0641	REF	3 LAST 259	05,7100	0 7145 0		TC	MALAPROP	
0642	REF	1	05,7101	0 3405 0		TC	RELAYOFF	
0643			05,7102	40200 1		OCT	40200	
0644	REF	7 LAST 259	05,7103	0 7146 0		TC	XVBOUT	

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P0645 FUNCTION 3 - DO LIFT-OFF IF IN MAJOR MODE 04

0646	REF	4	LAST 259	05,7104	0 2346 1	75FN3	TC	CHECKMM	TEST IF PLATFORM IS INERTIAL (MM 04)
0647				05,7105	00004 0		OCT	4	
0648	REF	1		05,7106	0 7120 0		TC	CHECKM02	IT IS NOT. TEST IF STILL GYROCOMPASSING
0649				05,7107	2 0017 0	+3	INHINT		
0650	REF	7	LAST 182	05,7110	3 4515 1		CAF	BIT2	
0651	REF	8	LAST 259	05,7111	7 0646 1		MASK	FLAGWRD1	
0652	REF	226	LAST 259	05,7112	1 0000 0		CCS	A	
0653	REF	8	LAST 259	05,7113	0 7146 0		TC	XVBOUT	
0654	REF	2	LAST 170	05,7114	3 2157 0		CAF	PRI024	
0655	REF	8	LAST 259	05,7115	0 2046 1		TC	FINDVAC	
0656	REF	2	LAST 170	05,7116	64000 0		CADR	LIFTOFF	
0659	REF	9	LAST 260	05,7117	0 7146 0		TC	XVBOUT	
0660	REF	5	LAST 260	05,7120	0 2346 1	CHECKM02	TC	CHECKMM	CHECK IF GYROCOMPASSING
0661				05,7121	00002 0		OCT	00002	
0662	REF	4	LAST 259	05,7122	0 7145 0		TC	MALAPROP	NOT INERTIAL OR GYROCOMPASSING
0663	REF	2	LAST 258	05,7123	0 7107 0		TC	75FN3 +3	

R0664 FUNCTION 5 - FDAI ALIGN ON.

0665	REF	3	LAST 259	05,7124	3 7140 0	75FN5	CAF	75MASK	
0666	REF	10	LAST 259	05,7125	7 0612 0		MASK	MODREG	
0667	REF	227	LAST 260	05,7126	1 0000 0		CCS	A	
0668	REF	5	LAST 260	05,7127	0 7145 0		TC	MALAPROP	
0669	REF	2	LAST 259	05,7130	0 3373 0		TC	RELAYON	
0670				05,7131	40400 1		OCT	40400	
0671				05,7132	2 0017 0		INHINT		
0672	REF	1		05,7133	3 7142 1		CAF	10SECS75	TURN OFF IN 10 SECONDS.
0673	REF	37	LAST 255	05,7134	0 2173 0		TC	WAITLIST	
0674	REF	1		05,7135	50172 0		CADR	FDOFTSK1	
0675	REF	10	LAST 260	05,7136	0 7146 0		TC	XVBOUT	
0676				05,7137	77715 1	-.5SEC75	DEC	-50	
0677				05,7140	00070 0	75MASK	OCT	70	
0678				05,7141	77770 1	75HI12	OCT	77770	
0679				05,7142	01750 1	10SECS75	DEC	1000	
0680	REF	3	LAST 258	05,7143	00616 0	LV75TEMP	ADRES	V75TEMP	

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P0681 THE FOLLOWING PROGRAM IMPLEMENTS MAJOR MODE 27 OF FLIGHT 501 - STATE VECTOR UPDATE.

06829				13,6753		BANK	13	
0683	REF	3 LAST 199	13,6753	0 3430 0	76UPDATE	TC	FLAG1DWN	TURN OFF UPDA0FLG TO ALLOW ANOTHER V76
06835			13,6754	20000 0		OCT	20000	
0684	REF	1	13,6755	4 7174 0		CS	MINUS14D	PICK UP NO OF COMPONENTS FOR V76
06845	REF	1	13,6756	0 6762 1		TC	DATUPDAT	
0685	REF	8 LAST 260	13,6757	3 4515 1	71UPDATE	CAF	BIT2	PICK UP NO OF COMPONENTS FOR V71
06855	REF	2 LAST 261	13,6760	0 6762 1		TC	DATUPDAT	
0686	REF	16 LAST 255	13,6761	3 4516 1	77UPDATE	CAF	BIT1	PICK UP NO OF COMPONENTS FOR V71
06865	REF	260 LAST 258	13,6762	5 0115 1	DATUPDAT	TS	MPAC	COMES HERE WITH NO OF COMPONENTS IN A
0687	REF	6 LAST 260	13,6763	0 2346 1		TC	CHECKMM	IS THIS P24
06875			13,6764	00024 1		OCT	24	
0688	REF	1	13,6765	0 7062 1		TC	CK4MM14	NO,SEE IF IT IS P14
06885	REF	11 LAST 260	13,6766	4 0612 0	STUFMODE	CS	MODREG	
0689	REF	2 LAST 157	13,6767	5 1116 0		TS	UPOLDMD	PUT OLD MODE IN REGISTER FOR DOWNLINK
06895	REF	2 LAST 236	13,6770	3 6754 1		CAF	76UPDATE +1	
0690	REF	9 LAST 260	13,6771	7 0646 1		MASK	FLAGWRD1	
06905	REF	228 LAST 260	13,6772	1 0000 0		CCS	A	IS UPDATFLG SET
0691	REF	1	13,6773	0 7203 1		TC	XACTALM7	YES, TURN ON CHECK FAIL AND EXIT
06915	REF	1	13,6774	3 2567 1		CAF	LDNLST2	NO, SET UP UPDATE DOWNLIST
0692	REF	3 LAST 151	13,6775	5 0672 1		TS	DNLSTADR	
06925	REF	261 LAST 261	13,6776	3 0115 1		XCH	MPAC	
0693	REF	2 LAST 157	13,6777	5 1117 1		TS	COMPNUMB	
06935	REF	3 LAST 257	13,7000	0 2362 1		TC	NEWMODE	
0694			13,7001	00027 1		OCT	27	
06945	REF	1	13,7002	4 7132 1		CS	LSTBUFF	
0695	REF	1	13,7003	5 1122 1		TS	-UPADR	INITIALIZE LOOP
0696	REF	10 LAST 258	13,7004	0 3302 0		TC	GRABDSP	
06965	REF	10 LAST 258	13,7005	0 3310 0		TC	PREGBSY	
06966	REF	17 LAST 261	13,7006	3 4516 1		CAF	BIT1	
0697	REF	2 LAST 157	13,7007	5 1123 0	NEXTCOMP	TS	STCNTR	
06975	REF	2 LAST 261	13,7010	4 1122 0	OHWELL	CS	-UPADR	
0698	REF	262 LAST 261	13,7011	5 0117 0		TS	MPAC +2	
06982	REF	1	13,7012	3 7201 0		CAF	STATENV7	
06985	REF	21 LAST 258	13,7013	0 3100 0		TC	NVSUB	SET UP FOR COMPONENT LOAD
0699	REF	19 LAST 258	13,7014	0 3315 0		TC	PRENVBSY	
06995	REF	14 LAST 258	13,7015	0 3136 0		TC	ENDIDLE	WAIT FOR INPUT
0700	REF	1	13,7016	0 7167 0		TC	ENDUPDAT	V34 E, TERMINATE
0701	REF	1	13,7017	0 7010 1		TC	OHWELL	V33E, MAKES NO SENSE, RECYCLE
07013	REF	106 LAST 255	13,7020	4 4516 0		CS	ONE	COMPONENT LOADED
07015	REF	3 LAST 261	13,7021	6 1122 1		AD	-UPADR	
0702	REF	4 LAST 261	13,7022	5 1122 1		TS	-UPADR	CHANGE LOAD ADDRESS
0703	REF	7 LAST 261	13,7023	0 2346 1		TC	CHECKMM	ARE WE STILL IN P27
07035			13,7024	00027 1		OCT	27	
0704	REF	2 LAST 261	13,7025	0 7167 0		TC	ENDUPDAT	NO, TIME HAS RUN OUT, EXIT
07045	REF	3 LAST 261	13,7026	4 1123 1		CS	STCNTR	YES, CONTINUE
0705	REF	3 LAST 261	13,7027	6 1117 1		AD	COMPNUMB	
07055	REF	229 LAST 261	13,7030	1 0000 0		CCS	A	WAS THAT THE LAST COMPONENT
0706	REF	230 LAST 261	13,7031	4 0000 0		CS	A	NO, CALCULATE NEW STCNTR
07065	REF	4 LAST 261	13,7032	6 1117 1		AD	COMPNUMB	

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0707	REF	1		13,7033	0 7007 1		TC	NEXTCOMP	RECYCLE
07075	REF	1		13,7034	3 7202 0	NEXTCHGE	CAF	L-UPADR	YES, SET UP FOR OCTAL ID IF NEEDED
0708	REF	263	LAST 261	13,7035	5 0117 0		TS	MPAC +2	
07085	REF	1		13,7036	3 7055 0		CAF	OCTIDNV	
0709	REF	22	LAST 261	13,7037	0 3100 0		TC	NVSUB	DISPLAY VERIFICATION V21N02
07095	REF	20	LAST 261	13,7040	0 3315 0		TC	PRENVBSY	
0710	REF	15	LAST 261	13,7041	0 3136 0		TC	ENDIDLE	WAIT FOR INPUT
07105	REF	3	LAST 261	13,7042	0 7167 0		TC	ENDUPDAT	V34E, TERMINATE
0711	REF	1		13,7043	0 7066 0		TC	UPDTDONE	V33E, UPDATE VERIFIED
07115	REF	5	LAST 261	13,7044	1 1122 0		CCS	-UPADR	IS OCTAL ID PNZ
0712				13,7045	0 7051 1		TC	+4	YES, TEST FURTHER
07125	REF	1		13,7046	0 7034 1		TC	NEXTCHGE	NO, BAD ID, RECYCLE
0713	REF	2	LAST 262	13,7047	0 7034 1		TC	NEXTCHGE	NO, BAD ID, RECYCLE
07135	REF	3	LAST 262	13,7050	0 7034 1		TC	NEXTCHGE	NO, BAD ID, RECYCLE
0714	REF	5	LAST 261	13,7051	4 1117 0		CS	COMPNUMB	
07145	REF	6	LAST 262	13,7052	6 1122 1		AD	-UPADR	
0715	REF	231	LAST 261	13,7053	1 0000 0		CCS	A	IS ID TOO BIG
07155	REF	4	LAST 262	13,7054	0 7034 1		TC	NEXTCHGE	YES, BAD ID, RECYCLE
0716				13,7055	02102 0	OCTIDNV	OCT	02102	CANNOT COME HERE
07165				13,7056	3 0000 1		N00P		NO, GOOD ID
0717	REF	7	LAST 262	13,7057	1 1122 0		CCS	-UPADR	NO, GOOD ID
07175	REF	2	LAST 261	13,7060	6 7132 0		AD	LSTBUFF	
0718	REF	2	LAST 261	13,7061	0 7011 0		TC	OHWEEL +1	
07195	REF	8	LAST 261	13,7062	0 2346 1	CK4MM14	TC	CHECKMM	COMES HERE TO SEE IF IN P14
0720				13,7063	00014 1		OCT	14	
0721	REF	2	LAST 261	13,7064	0 7203 1		TC	XACTALM7	NO, TURN ON CHECK FAIL
07215	REF	1		13,7065	0 6766 0		TC	STUFMODE	YES, SAVE MODE AND START P27
0722	REF	6	LAST 262	13,7066	1 1117 0	UPDTDONE	CCS	COMPNUMB	COMES HERE AFTER VERIFIED UPDATE
07225	REF	232	LAST 262	13,7067	1 0000 0		CCS	A	TEST NO OF COMPONENTS TO TELL WHICH UPDT
0723	REF	1		13,7070	0 7143 0		TC	TESTMORE	
07235				13,7071	2 0017 0	77CONTIN	INHINT		1 COMPONENT, V77 UPDATE
0724	REF	1		13,7072	3 1074 0		XCH	DTEPOCH +1	
07245	REF	15	LAST 157	13,7073	6 1100 1		AD	STBUFF	ADD TO DTEPOCH
0725	REF	264	LAST 262	13,7074	5 0117 0		TS	MPAC +2	
07255	REF	93	LAST 256	13,7075	3 5501 0		CAF	ZERO	
0726	REF	2	LAST 262	13,7076	6 1073 1		AD	DTEPOCH	
07265	REF	265	LAST 262	13,7077	5 0116 1		TS	MPAC +1	
0727	REF	94	LAST 262	13,7100	3 5501 0		CAF	ZERO	
07275	REF	266	LAST 262	13,7101	5 0115 1		TS	MPAC	
0728	REF	33	LAST 256	13,7102	0 5654 0		TC	BANKCALL	FORCE SIGN AGREEMENT
07285	REF	7	LAST 256	13,7103	07154 0		CADR	TPAGREE	
0729	REF	95	LAST 262	13,7104	3 5501 0		CAF	ZERO	
07295	REF	10	LAST 256	13,7105	5 0616 0		TS	DSPTM1	INITIALIZE REGISTERS FOR CLOCK INCREMENT
0730	REF	16	LAST 262	13,7106	4 1100 0		CS	STBUFF	
07301	REF	11	LAST 262	13,7107	5 0617 1		TS	DSPTM1 +1	
07302	REF	267	LAST 262	13,7110	3 0116 1		XCH	MPAC +1	
07303	REF	3	LAST 262	13,7111	5 1073 1		TS	DTEPOCH	REPLACE WITH NEW DTEPOCH
0731	REF	268	LAST 262	13,7112	3 0117 0		XCH	MPAC +2	
0732	REF	4	LAST 262	13,7113	5 1074 0		TS	DTEPOCH +1	
07322				13,7114	2 0017 0	ALLDONE	INHINT		STANDARD EXIT FOR SUCCESSFUL UPDATES

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07324	REF	25	LAST	206	13,7115	4	0645	1	CS	STATE	INVERT VERIFLAG ON COMPLETED UPDATES
07326	REF	6	LAST	187	13,7116	7	4511	1	MASK	BIT6	
07328	REF	150	LAST	255	13,7117	5	0001	0	TS	Q	
0733	REF	7	LAST	263	13,7120	4	4511	1	CS	BIT6	
07332	REF	26	LAST	263	13,7121	7	0645	1	MASK	STATE	
07334	REF	151	LAST	263	13,7122	6	0001	0	AD	Q	
07336	REF	27	LAST	263	13,7123	5	0645	0	TS	STATE	
07338					13,7124	2	0016	1	RELINT		
07339	REF	9	LAST	262	13,7125	0	2346	1	TC	CHECKMM	
073395					13,7126		00027	1	OCT	27	
0734					13,7127	0	7133	1	TC	+4	NO, DO NOT CHANGE PRESENT PROGRAM
07345	REF	3	LAST	261	13,7130	4	1116	1	CS	UPOLDMD	YES, RESTORE P14 OR P24
0735	REF	4	LAST	261	13,7131	0	2364	1	TC	NEWMODE +2	
07355	REF	17	LAST	262	13,7132		01100	1	LSTBUFF	ADRES	
0736	REF	2	LAST	149	13,7133	3	2566	0	CAF	LDNLST1	RESTORE FLIGHT DOWNLINK LIST
07365	REF	4	LAST	261	13,7134	5	0672	1	TS	DNLSTADR	
0737	REF	9	LAST	251	13,7135	0	3362	0	TC	FREEDSP	
07375	REF	7	LAST	262	13,7136	1	1117	0	CCS	COMPNUMB	WAS THIS A V77 UPDATE
0738	REF	233	LAST	262	13,7137	1	0000	0	CC5	A	
07385	REF	29	LAST	257	13,7140	0	2124	1	TC	ENDOFJOB	NO, FINISHED
0739	REF	11	LAST	257	13,7141	0	5720	1	TC	POSTJUMP	YES, GO INCREMENT CLOCK
07395	REF	2	LAST	256	13,7142		12511	1	CADR	UPDATIME	
0740	REF	234	LAST	263	13,7143	1	0000	0	TESTMORE	CCS	IF NOT V77, WHICH UPDATE WAS IT
07405	REF	1			13,7144	0	7152	0	TC	76CONTIN	V76, CONTINUE AT 76CONTIN
0741	REF	18	LAST	263	13,7145	3	1100	1	71CONTIN	XCH	V71, LOAD TFFMIN
07415	REF	1			13,7146	5	1676	1	TS	TFFMIN	
0742	REF	19	LAST	263	13,7147	3	1101	0	XCH	STBUFF +1	
07425	REF	2	LAST	263	13,7150	5	1677	0	TS	TFFMIN +1	
0743	REF	1			13,7151	0	7114	1	TC	ALLDONE	GO TO STANDARD EXIT
07435	REF	3	LAST	221	13,7152	0	3416	1	76CONTIN	TC	SET UPDATFLG
0744					13,7153		20000	0	OCT	20000	
07445	REF	17	LAST	220	13,7154	3	4513	1	CAF	BIT4	
0745	REF	4	LAST	263	13,7155	7	1116	1	MASK	UPOLDMD	
07455	REF	235	LAST	263	13,7156	1	0000	0	CC5	A	WAS OLD PROGRAM P14 OR P24
0746	REF	2	LAST	263	13,7157	0	7114	1	TC	ALLDONE	P24, GO TO STANDARD EXIT
07465	REF	20	LAST	263	13,7160	4	1114	0	CS	STBUFF +12D	P14, LOAD UPTIME
0747	REF	236	LAST	263	13,7161	4	0000	0	CS	A	
07475	REF	1			13,7162	5	1671	0	TS	UPTIME	
0748	REF	21	LAST	263	13,7163	4	1115	1	CS	STBUFF +13D	
07485	REF	237	LAST	263	13,7164	4	0000	0	CS	A	
0749	REF	2	LAST	263	13,7165	5	1672	0	TS	UPTIME +1	
07495	REF	3	LAST	263	13,7166	0	7114	1	TC	ALLDONE	GO TO STANDARD EXIT
0750	REF	10	LAST	263	13,7167	0	2346	1	ENDUPDAT	TC	COMES HERE ON V34E
0751					13,7170		00027	1	OCT	27	IS IT STILL P27
0752					13,7171	0	7175	0	TC	+4	NO, DO NOT CHANGE PRESENT PROGRAM
0753	REF	5	LAST	263	13,7172	4	1116	1	CS	UPOLDMD	YES, RESTORE P14 OR P24
0754	REF	5	LAST	263	13,7173	0	2364	1	TC	NEWMODE +2	
0755					13,7174		77761	1	MINUS14D	OCT	
0756	REF	3	LAST	263	13,7175	3	2566	0	CAF	LDNLST1	RESTORE DOWNLIST
0757	REF	5	LAST	263	13,7176	5	0672	1	TS	DNLSTADR	

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0758	REF	10	LAST	263	13,7177	0 3362 0	TC	FREEDSP	
0759	REF	30	LAST	263	13,7200	0 2124 1	TC	ENDOFJOB	THATS IT, THERE AINT NO MORE
0760					13,7201	02101 0	STATENV7	OCT	02101
0761	REF	8	LAST	262	13,7202	01122 1	L-UPADR	ADRES	-UPADR
07632	REF	12	LAST	263	13,7203	0 5720 1	XACTALM7	TC	POSTJUMP
07634	REF	2	LAST	236	13,7204	12062 0		CADR	XACTALM
0764						05,7144		BANK	5
07641					05,7144	02101 0	STATENV	OCT	02101
07643	REF	4	LAST	236	05,7145	0 3233 0	MALAPROP	TC	FALTON
07644	REF	11	LAST	264	05,7146	0 3362 0	XVBOUT	TC	FREEDSP
07645	REF	31	LAST	264	05,7147	0 2124 1		TC	ENDOFJOB
07646	REF	6	LAST	263	05,7150	0 2362 1	RED05.20	TC	NEWMODE
07647					05,7151	00024 1		OCT	24
07648	REF	32	LAST	264	05,7152	0 2124 1		TC	ENDOFJOB
0765						05,7153	ENDEXTVS	=	

7204
6752

232

2
8
16
128

154

L AGC SELF-CHECK

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0001 11,6000 SETLOC 22000

R0002 NEXT THREE CONSTANTS ARE USED IN RUPTCHK SUBROUTINE

0003 11,6000 37767 0 OVCON OCTAL 37767

0004 11,6001 00320 0 TMIWAIT OCTAL 00320

0005 REF 1 11,6002 06401 1 ZRUPTCON ADRES TSKADRS MUST BE ADDRESS OF TSKADRS

R0006 NEXT SIX CONSTANTS ARE USED IN ERASCHK, CNTRCHK, AND CYCLSHF SUBROUTINES

0007 REF 9 LAST 206 4512 CONCNT1 EQUALS BIT5 00020

0008 11,6003 00060 1 CONERAS1 OCTAL 00060

0009 11,6004 01774 1 CONERAS2 OCTAL 01774

0010 11,6005 25252 0 CONC+S1 OCTAL 25252

0011 REF 4 LAST 186 4664 CONC+S2 EQUALS CSQ 40001

R0012 NEXT 3 CONSTANTS ARE USED IN SHOWSUM ROUTINE

0013 REF 1 11,6006 01771 1 SUMADRS ADRES SKEEP1

0014 11,6007 00501 0 VNCON OCTAL 00501 SKEEP1 HOLDS SUM OF BANK

0015 REF 1 11,6010 23037 1 SCADR CADR SDISPLAY DISPLAY CONTENTS OF THREE ADDRESSES

R0016 THE FOLLOWING CONSTANTS ARE USED THROUGHOUT SELF-CHECK

0017 REF 96 LAST 262 5501 SCON0 EQUALS ZERO +0

0018 REF 18 LAST 261 4516 SCON1 EQUALS BIT1 +1

0019 REF 9 LAST 261 4515 SCON2 EQUALS BIT2 +2

0020 REF 9 LAST 236 4514 SCON4 EQUALS BIT3 +4

0021 REF 4 LAST 212 4510 SCON64 EQUALS BIT7 00100

0022 REF 4 LAST 142 4502 SCON1/4 EQUALS BIT13 10000

0023 REF 11 LAST 232 4501 SCON1/2 EQUALS BIT14 20000

0024 REF 18 LAST 232 4476 SCON+MAX EQUALS POSMAX 37777

0025 REF 5 LAST 75 4340 SCON-2 EQUALS MINUS2 77775

0026 REF 6 LAST 201 4335 SCON-1 EQUALS MINUS1 77776

0027 REF 3 LAST 254 5504 SCONMAX EQUALS NEG0 77777

0028 REF 1 11,6011 3 0115 1 -2 XCH QADRS ENTRY HERE FROM -ZEROCHK AND -ONECHK

0029 11,6012 0 6014 1 TC +2

0030 REF 152 LAST 263 11,6013 3 0001 0 ERRORS XCH Q FAILURE DETECTED - ALARM.
0031 REF 3 LAST 145 11,6014 5 1764 0 TS SFAIL SAVE CALLING Q FOR POSSIBLE FAILURE LOC.

0032 REF 14 LAST 209 11,6015 0 3007 0 TC ALARM

0033 11,6016 01102 0 OCT 01102

0034 REF 2 LAST 140 11,6017 3 1765 1 XCH ERCOUNT ADD +1 TO ERCOUNT REGISTER EVERY TIME
0035 REF 1 11,6020 6 4516 1 AD SCON1 THERE IS AN ERROR IN SELF-CHECK

0036 REF 3 LAST 265 11,6021 3 1765 1 XCH ERCOUNT

0037 REF 1 11,6022 0 3000 1 TC SMODECHK START SELF-CHECK AGAIN

0038 REF 153 LAST 265 11,6023 3 0001 0 -ZEROCHK XCH Q HOLDS ADDRESS THAT WAS IN Q REGISTER

0039 REF 2 LAST 265 11,6024 5 0115 1 TS QADRS

0040 REF 154 LAST 265 11,6025 3 0001 0 XCH Q

0041 REF 238 LAST 263 11,6026 1 0000 0 CCS A

0042 REF 1 11,6027 0 6011 1 TC ERRORS -2

0043 REF 2 LAST 265 11,6030 0 6011 1 TC ERRORS -2

0044 REF 3 LAST 265 11,6031 0 6011 1 TC ERRORS -2

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0045	REF 155 LAST 265	11,6032	0 0001 0		TC	Q	
0046	REF 239 LAST 265	11,6033	4 0000 0		CS	A	
0047	REF 156 LAST 266	11,6034	3 0001 0	-ONECHK	XCH	Q	
0048	REF 3 LAST 265	11,6035	5 0115 1		TS	QADRS	HOLDS ADDRESS THAT WAS IN Q REGISTER
0049	REF 157 LAST 266	11,6036	3 0001 0		XCH	Q	
0050	REF 240 LAST 266	11,6037	1 0000 0		CCS	A	
0051	REF 4 LAST 265	11,6040	0 6011 1		TC	ERRORS -2	
0052	REF 5 LAST 266	11,6041	0 6011 1		TC	ERRORS -2	
0053	REF 241 LAST 266	11,6042	1 0000 0		CCS	A	
0054	REF 6 LAST 266	11,6043	0 6011 1		TC	ERRORS -2	
0055	REF 158 LAST 266	11,6044	0 0001 0		TC	Q	
R0056	CHECKS MOST CCS PULSES						
0057		11,6045	2 0016 1	CCSCHK	RELINT		COMES HERE FROM INHIBIT LOOP AT SMODECHK
0058	REF 1	11,6046	4 4515 0		CS	SCON2	-2
0059	REF 242 LAST 266	11,6047	1 0000 0		CCS	A	C(A) = -2
0060	REF 7 LAST 266	11,6050	0 6013 0		TC	ERRORS	
0061	REF 8 LAST 266	11,6051	0 6013 0		TC	ERRORS	
0062		11,6052	0 6054 0		TC	+2	
0063	REF 9 LAST 266	11,6053	0 6013 0		TC	ERRORS	
0064	REF 243 LAST 266	11,6054	1 0000 0		CCS	A	C(A) = +1, RESULT OF CCS -NUMBER
0065		11,6055	0 6061 0		TC	+4	
0066	REF 10 LAST 266	11,6056	0 6013 0		TC	ERRORS	
0067	REF 11 LAST 266	11,6057	0 6013 0		TC	ERRORS	
0068	REF 12 LAST 266	11,6060	0 6013 0		TC	ERRORS	
0069	REF 244 LAST 266	11,6061	1 0000 0		CCS	A	C(A) = +0, RESULT OF CCS + NUMBER
0070	REF 13 LAST 266	11,6062	0 6013 0		TC	ERRORS	
0071		11,6063	0 6066 1		TC	+3	
0072	REF 14 LAST 266	11,6064	0 6013 0		TC	ERRORS	
0073	REF 15 LAST 266	11,6065	0 6013 0		TC	ERRORS	
0074	REF 245 LAST 266	11,6066	4 0000 0		CS	A	
0075	REF 246 LAST 266	11,6067	1 0000 0		CCS	A	C(A) = -0, RESULT OF CCS +0
0076	REF 16 LAST 266	11,6070	0 6013 0		TC	ERRORS	
0077	REF 17 LAST 266	11,6071	0 6013 0		TC	ERRORS	
0078	REF 18 LAST 266	11,6072	0 6013 0		TC	ERRORS	
0079	REF 247 LAST 266	11,6073	1 0000 0		CCS	A	RESULT OF CCS -0
0080	REF 19 LAST 266	11,6074	0 6013 0		TC	ERRORS	
0081		11,6075	0 6100 0		TC	+3	
0082	REF 20 LAST 266	11,6076	0 6013 0		TC	ERRORS	
0083	REF 21 LAST 266	11,6077	0 6013 0		TC	ERRORS	
R0084	SPECIFICALLY CHECKS RSC PULSE OF TC INSTRUCTION (ALSO MOST OF TC						
R0085	PULSES)						
0086		11,6100	0 6102 1		TC	+2	
0087		11,6101	0 6103 0		TC	+2	NEXT SUBROUTINE
0088	REF 159 LAST 266	11,6102	0 0001 0		TC	Q	

L AGC SELF-CHECK

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R0089 CHECKS WP, GP, TP - WP2, RP2 - RG, WP, OF CC51

R0090 CHECKS RB, WG PULSES (READ BACK INTO ERASABLE)

0091				11,6103	3	5777	0	PTY+ERAS	CAF	5777	47777
0092	REF	2	LAST	265	11,6104	5	1771	1	TS	SKEEP1	
0093	REF	3	LAST	267	11,6105	7	1771	0	MASK	SKEEP1	
0094	REF	4	LAST	267	11,6106	3	1771	1	XCH	SKEEP1	
0095	REF	5	LAST	267	11,6107	6	1771	1	AD	SKEEP1	
0096					11,6110	2	5777	1	INDEX	5777	
0097	REF	6	LAST	267	11,6111	4	1771	0	4	SKEEP1	MP SKEEP1
0098					11,6112	2	5777	1	INDEX	5777	
0099	REF	7	LAST	267	11,6113	5	1771	1	5	SKEEP1	DV SKEEP1
0100	REF	8	LAST	267	11,6114	4	1771	0	CS	SKEEP1	
0101	REF	1			11,6115	5	1772	1	TS	SKEEP2	30000
0102	REF	9	LAST	267	11,6116	2	1771	0	INDEX	SKEEP1	TROUBLE IF C(SKEEP1) NOT 47777
0103	REF	2	LAST	267	11,6117	6	1772	1	6	SKEEP2	SU SKEEP2, C(A) = -0
0104	REF	3	LAST	267	11,6120	5	1772	1	TS	SKEEP2	-0
0105	REF	4	LAST	267	11,6121	1	1772	0	CCS	SKEEP2	
0106	REF	22	LAST	266	11,6122	0	6013	0	TC	ERRORS	
0107	REF	23	LAST	267	11,6123	0	6013	0	TC	ERRORS	
0108	REF	24	LAST	267	11,6124	0	6013	0	TC	ERRORS	
0109	REF	5	LAST	267	11,6125	1	1772	0	CCS	SKEEP2	
0110	REF	25	LAST	267	11,6126	0	6013	0	TC	ERRORS	
0111	REF	26	LAST	267	11,6127	0	6013	0	TC	ERRORS	
0112	REF	27	LAST	267	11,6130	0	6013	0	TC	ERRORS	
R0113	START ERASABLE INSTRUCTION CHECK										
0114	REF	1			11,6131	3	6147	0	CAF	EINST1	
0115	REF	10	LAST	267	11,6132	5	1771	1	TS	SKEEP1	
0116	REF	1			11,6133	3	6150	0	CAF	EINST2	
0117	REF	6	LAST	267	11,6134	5	1772	1	TS	SKEEP2	
0118	REF	1			11,6135	3	6151	1	CAF	EINST3	
0119	REF	1			11,6136	5	1773	0	TS	SKEEP3	
0120	REF	1			11,6137	3	6152	1	CAF	EINST4	
0121	REF	1			11,6140	5	1774	1	TS	SKEEP4	
0122	REF	1			11,6141	3	6153	0	CAF	EINST5	
0123	REF	1			11,6142	5	1775	0	TS	SKEEP5	
0124	REF	1			11,6143	3	6154	1	CAF	EINST6	
0125	REF	1			11,6144	5	1776	0	TS	SKEEP6	
0126	REF	1			11,6145	3	4501	1	CAF	SCON1/2	
0127	REF	11	LAST	267	11,6146	0	1771	1	TC	SKEEP1	
0128					11,6147	2	5777	1	EINST1	INDEX	5777
0129	REF	2	LAST	266	11,6150	4	4515	0	EINST2	4	SCON2
0130	REF	248	LAST	266	11,6151	6	0000	1	EINST3	AD	A
0131	REF	249	LAST	267	11,6152	1	0000	0	EINST4	CCS	A
0132	REF	12	LAST	267	11,6153	0	1771	1	EINST5	TC	SKEEP1
0133					11,6154	0	6155	0	EINST6	TC	+1

MP, C(A) = +1, THEN +0
CHECKS ST2 PARITY

NEXT SUBROUTINE

R0134 CHECKS RSC, WSC PULSES

R0135 NO WSC PULSE IN MASK INSTRUCTION

0136	REF	1			11,6155	3	4510	1	SCCHK	CAF	SCON64	00100
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L	AGC SELF-CHECK							USER'S OWN PAGE NO.	4
0137	REF	19	LAST	254	11,6156	3	0003	1	XCH LP 00040
0138	REF	20	LAST	268	11,6157	3	0003	1	XCH LP
0139	REF	21	LAST	268	11,6160	5	0003	1	TS LP 00020
0140	REF	22	LAST	268	11,6161	6	0003	1	AD LP 00010
0141	REF	23	LAST	268	11,6162	2	0003	0	INDEX LP 00004
0142					11,6163	2	5767	0	2 5767 INDEX 5777
0143					11,6164	6	0003	1	6 0003 SU LP, 00002
R0144	NEXT	4	INSTRUCTIONS	CHECK RSC PULSE IN MASK INSTRUCTION					
0145	REF	24	LAST	268	11,6165	4	0003	0	CS LP C(A) = -2, C(LP) = +1
0146	REF	25	LAST	268	11,6166	7	0003	0	MASK LP C(A) = +1, C(LP) = +1
0147	REF	250	LAST	267	11,6167	4	0000	0	CS A
0148	REF	1			11,6170	0	6034	0	TC -ONECHK
0149	REF	26	LAST	268	11,6171	1	0003	0	CCS LP
0150					11,6172	0	6176	1	TC +4
0151	REF	28	LAST	267	11,6173	0	6013	0	TC ERRORS
0152	REF	29	LAST	268	11,6174	0	6013	0	TC ERRORS
0153	REF	30	LAST	268	11,6175	0	6013	0	TC ERRORS
0154	REF	27	LAST	268	11,6176	1	0003	0	CCS LP
0155	REF	31	LAST	268	11,6177	0	6013	0	TC ERRORS
0156	REF	32	LAST	268	11,6200	0	6013	0	TC ERRORS
0157					11,6201	0	6203	0	TC +2
0158	REF	33	LAST	268	11,6202	0	6013	0	TC ERRORS
0159	REF	28	LAST	268	11,6203	1	0003	0	CCS LP
0160	REF	34	LAST	268	11,6204	0	6013	0	TC ERRORS
0161					11,6205	0	6210	1	TC +3 NEXT SUBROUTINE
0162	REF	35	LAST	268	11,6206	0	6013	0	TC ERRORS
0163	REF	36	LAST	268	11,6207	0	6013	0	TC ERRORS
R0164	CHECKS	MOST	OF	MP PULSES					
0165	REF	1			11,6210	3	4514	0	MPCHK CAF SCON4
0166	REF	29	LAST	268	11,6211	5	0003	1	TS LP
0167	REF	1			11,6212	3	4476	0	MP++ CAF SCON+MAX
0168					11,6213	2	5777	1	INDEX 5777
0169	REF	30	LAST	268	11,6214	4	0003	0	4 LP C(A) = +1, CHECKS RSC PULSE
0170	REF	31	LAST	268	11,6215	6	0003	1	AD LP C(LP) = +37776
0171	REF	13	LAST	267	11,6216	5	1771	1	TS SKEEP1 37777
0172	REF	2	LAST	268	11,6217	3	4476	0	MP+- CAF SCON+MAX
0173					11,6220	2	5777	1	INDEX 5777
0174	REF	1			11,6221	4	4340	0	4 SCON-2
0175	REF	32	LAST	268	11,6222	6	0003	1	AD LP C(LP) = -37776
0176	REF	14	LAST	268	11,6223	6	1771	1	AD SKEEP1
0177	REF	1			11,6224	0	6023	0	TC -ZEROCHK
0178	REF	3	LAST	268	11,6225	4	4476	1	MP-- CS SCON+MAX
0179					11,6226	2	5777	1	INDEX 5777
0180	REF	2	LAST	268	11,6227	4	4340	0	4 SCON-2 C(A) = +1
0181	REF	33	LAST	268	11,6230	6	0003	1	AD LP C(LP) = +37776
0182	REF	15	LAST	268	11,6231	5	1771	1	TS SKEEP1 37777
0183	REF	4	LAST	268	11,6232	4	4476	1	MP++ CS SCON+MAX
0184					11,6233	2	5777	1	INDEX 5777
0185	REF	3	LAST	267	11,6234	4	4515	0	4 SCON2 C(A) = -1
0186	REF	34	LAST	268	11,6235	6	0003	1	AD LP C(LP) = -37776

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0187	REF	16	LAST	268	11,6236	6	1771	1	AD	SKEEP1	
0188	REF	2	LAST	268	11,6237	0	6023	0	TC	-ZEROCHK	
R0189 CHECKS MOST OF SU PULSES											
0190	REF	5	LAST	268	11,6240	3	4476	0	SUCHK	CAF	SCON+MAX
0191					11,6241	2	5777	1	INDEX	5777	
0192	REF	1			11,6242	6	6421	0	6	SCONSU	SU 37776, C(A) = +1
0193	REF	2	LAST	268	11,6243	0	6033	1	TC	-ONECHK -1	

R0194	CHECKS MOST OF DV PULSES (ALL EXCEPT WP, GP, TP)										
R0195	DIVIDE USES ST2										
R0196	++ AND --, C(A) = 25252, C(Q) = 67777, C(LP) = +1										
R0197	+- AND -+ , C(A) = 52525, C(Q) = 67777, C(LP) = 40000 AND 40001										
0198	REF	1			11,6244	3	6557	0	DVCHK	CAF	SCON3/8
0199	REF	160	LAST	266	11,6245	5	0001	0	TS	Q	
0200	REF	1			11,6246	3	4502	1	DV++	CAF	SCON1/4
0201					11,6247	2	5777	1	INDEX	5777	
0202	REF	161	LAST	269	11,6250	5	0001	0	5	Q	C(A) = 25252, CHECKS RSC PULSE
0203	REF	17	LAST	269	11,6251	5	1771	1	TS	SKEEP1	
0204	REF	35	LAST	268	11,6252	3	0003	1	XCH	LP	
0205	REF	7	LAST	267	11,6253	5	1772	1	TS	SKEEP2	
0206	REF	162	LAST	269	11,6254	4	0001	1	DV+-	CS	Q
0207					11,6255	2	5777	1	INDEX	5777	
0208	REF	1			11,6256	5	6560	1	5	SCON-3/8	C(A) = 52525
0209	REF	18	LAST	269	11,6257	6	1771	1	AD	SKEEP1	C(A) = -0
0210	REF	2	LAST	267	11,6260	5	1775	0	TS	SKEEP5	SHOULD BE -0
0211	REF	36	LAST	269	11,6261	3	0003	1	XCH	LP	
0212	REF	2	LAST	267	11,6262	5	1773	0	TS	SKEEP3	
0213	REF	163	LAST	269	11,6263	3	0001	0	DV--	XCH	Q
0214					11,6264	2	5777	1	INDEX	5777	
0215	REF	2	LAST	269	11,6265	5	6560	1	5	SCON-3/8	C(A) = 25252
0216	REF	19	LAST	269	11,6266	5	1771	1	TS	SKEEP1	
0217	REF	37	LAST	269	11,6267	3	0003	1	XCH	LP	
0218	REF	2	LAST	267	11,6270	5	1774	1	TS	SKEEP4	
0219	REF	164	LAST	269	11,6271	3	0001	0	DV--	XCH	Q
0220					11,6272	2	5777	1	INDEX	5777	
0221	REF	2	LAST	269	11,6273	5	6557	0	5	SCON3/8	
0222	REF	20	LAST	269	11,6274	6	1771	1	AD	SKEEP1	C(A) = -0
0223	REF	21	LAST	269	11,6275	5	1771	1	TS	SKEEP1	
0224	REF	38	LAST	269	11,6276	4	0003	0	CS	LP	C(A) = 37776
0225	REF	22	LAST	269	11,6277	6	1771	1	AD	SKEEP1	C(A) = 37776
0226	REF	8	LAST	269	11,6300	6	1772	1	AD	SKEEP2	C(A) = 37777
0227	REF	3	LAST	269	11,6301	6	1773	0	AD	SKEEP3	C(A) = -0
0228	REF	3	LAST	269	11,6302	6	1774	1	AD	SKEEP4	C(A) = +1
0229	REF	3	LAST	269	11,6303	6	1775	0	AD	SKEEP5	C(A) = +1
0230	REF	3	LAST	269	11,6304	0	6033	1	TC	-ONECHK -1	

R0231 CHECKS MOST TS PULSES

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R0232 CHECKS ALL OF PINC AND MINC PULSES EXCEPT WOVIR

0233	REF	2	LAST	265	11,6305	3	4516	1	TS+-CHK	CAF	SCON1	
0234	REF	47	LAST	234	11,6306	5	0034	0		TS	OVCTR	
0235	REF	6	LAST	269	11,6307	6	4476	0		AD	SCON+MAX	C(A) = + WITH OVERFLOW
0236	REF	23	LAST	269	11,6310	5	1771	1		TS	SKEEP1	
0237	REF	37	LAST	268	11,6311	0	6013	0		TC	ERRORS	
0238	REF	24	LAST	270	11,6312	6	1771	1		AD	SKEEP1	C(A) = +1
0239	REF	48	LAST	270	11,6313	6	0034	0		AD	OVCTR	C(A) = +3
0240	REF	49	LAST	270	11,6314	5	0034	0		TS	OVCTR	
0241	REF	251	LAST	268	11,6315	4	0000	0		CS	A	C(A) = 77774
0242					11,6316	2	5777	1		INDEX	5777	
0243	REF	1			11,6317	6	6376	0		6	SCONTS	C(A) = -0 WITH UNDERFLOW
0244	REF	25	LAST	270	11,6320	5	1771	1		TS	SKEEP1	
0245	REF	38	LAST	270	11,6321	0	6013	0		TC	ERRORS	
0246	REF	26	LAST	270	11,6322	6	1771	1		AD	SKEEP1	C(A) = -1
0247	REF	50	LAST	270	11,6323	6	0034	0		AD	OVCTR	C(A) = -1+2
0248	REF	4	LAST	269	11,6324	0	6033	1		TC	-ONECHK -1	

R0249 NOT POSSIBLE TO CHECK WOVI PULSE IN NX11

R0250 START WOVI PULSE CHECK AND INHINT RELINT CHECK

0251	REF	1			11,6325	2	0017	0	RUPTCHK	INDEX	INHINT	
0252	REF	1			11,6326	3	5501	0		CAF	SCON0	
0253					11,6327	5	0024	1		TS	0024	ZRUPT
0254	REF	1			11,6330	2	0016	1		INDEX	RELINT	
0255	REF	12	LAST	255	11,6331	6	0036	1		AD	TIME1	
0256	REF	27	LAST	270	11,6332	5	1771	1		TS	SKEEP1	
0257	REF	28	LAST	270	11,6333	4	1771	0	TENMS	CS	SKEEP1	CHECK FOR NEXT PULSE TP TIME1
0258	REF	13	LAST	270	11,6334	6	0036	1		AD	TIME1	
0259	REF	252	LAST	270	11,6335	1	0000	0		CCS	A	
0260	REF	253	LAST	270	11,6336	1	0000	0		CCS	A	
0261	REF	1			11,6337	0	6325	0		TC	RUPTCHK	START AGAIN, TIMING IS OFF DUE TO RUPT
0262					11,6340	0	6342	1		TC	+2	10 MS PULSE HAS ARRIVED AT TIME1
0263	REF	1			11,6341	0	6333	1		TC	TENMS	
0264	REF	1			11,6342	3	6001	0		CAF	TM1WAIT	START 7 TO 8 MS WAIT
0265	REF	254	LAST	270	11,6343	1	0000	0	7-8WAIT	CCS	A	
0266	REF	1			11,6344	0	6343	0		TC	7-8WAIT	
0267	REF	2	LAST	270	11,6345	2	0017	0		INDEX	INHINT	
0268					11,6346	1	0024	0		CCS	0024	ZRUPT
0269	REF	2	LAST	270	11,6347	0	6325	0		TC	RUPTCHK	THERE WAS AN INTERRUPT. START AGAIN
0270	REF	3	LAST	270	11,6350	3	4516	1		CAF	SCON1	
0271	REF	38	LAST	260	11,6351	0	2173	0		TC	WAITLIST	
0272	REF	2	LAST	265	11,6352		22401	1		CADR	TSKADRS	
0273	REF	7	LAST	270	11,6353	3	4476	0		XCH	SCON+MAX	
0274	REF	1			11,6354	6	6000	1		AD	OVCON	WILL STAY IN OVERFLOW, UNDERFLOW FOR
0275	REF	2	LAST	270	11,6355	2	0016	1		INDEX	RELINT	APPROXIMATELY 3 MS
0276	REF	255	LAST	270	11,6356	1	0000	0	WAIT1	CCS	A	
0277	REF	4	LAST	268	11,6357	6	4515	1		AD	SCON2	
0278					11,6360	0	6362	0		TC	+2	
0279	REF	1			11,6361	0	6374	1		TC	WOVIRPT	
0280					11,6362	2	5777	1		INDEX	5777	

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0281	REF	1		11,6363	6 5504 0		6	SCONMAX	SU -0
0282	REF	256 LAST 270		11,6364	3 0000 1		XCH	A	
0283	REF	2 LAST 270		11,6365	2 5501 1		INDEX	SCON0	
0284	REF	257 LAST 271		11,6366	4 0000 0		CS	A	
0285	REF	258 LAST 271		11,6367	7 0000 0		MASK	A	
0286	REF	259 LAST 271		11,6370	4 0000 0		CS	A	
0287	REF	260 LAST 271		11,6371	5 0000 1		TS	A	
0288	REF	39 LAST 270		11,6372	0 6013 0		TC	ERRORS	
0289	REF	1		11,6373	0 6356 1		TC	WAIT1	
0290	REF	3 LAST 270		11,6374	2 0017 0	WOVIRPT	INDEX	INHINT	
0291	REF	29 LAST 270		11,6375	5 1771 1		TS	SKEEP1	
0292				11,6376	37775 0	SCONTS	OCTAL	37775	
0293	REF	3 LAST 270		11,6377	2 0016 1		INDEX	RELINT	
R0294	INTERRUPT SHOULD APPEAR BEFORE NEXT INSTRUCTION								
0295	REF	1		11,6400	0 6410 1		TC	SOPTION1	END OF PULSES CHECK
0296				11,6401	4 0024 0	TSKADRS	CS	0024	C(ZRUPT) = ADDRESS OF TSKADRS
0297	REF	1		11,6402	6 6002 0		AD	ZRUPTCON	
0298	REF	3 LAST 269		11,6403	0 6023 0		TC	-ZEROCHK	
0299	REF	1		11,6404	3 1766 1		XCH	SCOUNT	ADD +1 TO SCOUNT REGISTER AT THIS
0300	REF	4 LAST 270		11,6405	6 4516 1		AD	SCON1	POINT OF SELF-CHECK.
0301	REF	2 LAST 271		11,6406	3 1766 1		XCH	SCOUNT	
0302	REF	29 LAST 256		11,6407	0 2256 1		TC	TASKOVER	
0303	REF	2 LAST 140		11,6410	1 1762 1	SOPTION1	CCS	SMODE	3 OPTIONS OF SELF-CHECK
0304	REF	2 LAST 265		11,6411	0 3000 1		TC	SMODECHK	END OF PULSES ONLY CHECK
0305	REF	3 LAST 271		11,6412	0 3000 1		TC	SMODECHK	
0306				11,6413	0 6414 0		TC	+1	CONTINUE IF C(SMODE) IS A NEG. NUMBER
R0307	COUNTS DOWN 15 BIT NUMBER (APPROXIMATELY 10 SECONDS)								
0308	REF	8 LAST 270		11,6414	4 4476 1	COUNTCHK	CS	SCON+MAX	
0309	REF	4 LAST 269		11,6415	5 1775 0		TS	SKEEP5	
0310	REF	165 LAST 269		11,6416	5 0001 0	COUNTS	TS	Q	
0311	REF	166 LAST 271		11,6417	1 0001 1		CCS	Q	
0312	REF	1		11,6420	0 6434 1		TC	-NMBR	
0313				11,6421	37776 0	SCONSU	OCTAL	37776	
0314				11,6422	0 6424 0		TC	+2	
0315	REF	1		11,6423	0 6443 1		TC	OFCOUNT	
0316	REF	5 LAST 271		11,6424	6 1775 0		AD	SKEEP5	
0317	REF	5 LAST 270		11,6425	0 6034 0		TC	-ONECHK	
0318	REF	16 LAST 148		11,6426	1 0215 0		CCS	NEWJOB	
0319	REF	1		11,6427	0 7377 0		TC	DUMEXIT	
0320	REF	6 LAST 271		11,6430	4 1775 1		CS	SKEEP5	
0321	REF	2 LAST 271		11,6431	6 5504 0		AD	SCONMAX	-0
0322	REF	4 LAST 269		11,6432	5 1774 1		TS	SKEEP4	
0323	REF	1		11,6433	0 6416 1		TC	COUNTS	
0324	REF	261 LAST 271		11,6434	4 0000 0	-NMBR	CS	A	
0325	REF	7 LAST 271		11,6435	5 1775 0		TS	SKEEP5	
0326	REF	5 LAST 271		11,6436	6 1774 1		AD	SKEEP4	
0327	REF	6 LAST 271		11,6437	0 6033 1		TC	-ONECHK -1	

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0328	REF	8	LAST 271	11,6440	4	1775	1	CS	SKEEP5	
0329	REF	262	LAST 271	11,6441	4	0000	0	CS	A	
0330	REF	2	LAST 271	11,6442	0	6416	1	TC	COUNTS	
R0331	COUNTS DOWN OVERFLOW NUMBER (APPROXIMATELY 3.5 SECONDS)									
0332	REF	1		11,6443	5	1777	1	OFCOUNT	TS	SKEEP7 +0
0333	REF	9	LAST 271	11,6444	3	4476	0	CAF	SCON+MAX	
0334	REF	263	LAST 272	11,6445	6	0000	1	AD	A	
0335	REF	5	LAST 271	11,6446	6	4516	1	COUNTSOF	AD	SCON1
0336				11,6447	2	0017	0	INHINT		
0337	REF	167	LAST 271	11,6450	3	0001	0	XCH	Q	
0338	REF	168	LAST 272	11,6451	1	0001	1	CCS	Q	
0339	REF	2	LAST 267	11,6452	5	1776	0	TS	SKEEP6	
0340	REF	1		11,6453	0	6466	0	TC	ENDOF	
0341				11,6454	2	0016	1	RELINT		
0342	REF	2	LAST 272	11,6455	6	1777	1	AD	SKEEP7	
0343	REF	3	LAST 272	11,6456	5	1777	1	TS	SKEEP7	
0344				11,6457	0	6461	1	TC	+2	
0345	REF	40	LAST 271	11,6460	0	6013	0	TC	ERRORS	
0346	REF	17	LAST 271	11,6461	1	0215	0	CCS	NEWJOB	
0347	REF	2	LAST 271	11,6462	0	7377	0	TC	DUMEXIT	
0348	REF	10	LAST 272	11,6463	3	4476	0	CAF	SCON+MAX	
0349	REF	3	LAST 272	11,6464	6	1776	0	AD	SKEEP6	
0350	REF	1		11,6465	0	6446	1	TC	COUNTSOF	
0351	REF	264	LAST 272	11,6466	4	0000	0	ENDOF	CS	A
0352				11,6467	2	0016	1	RELINT		
0353	REF	4	LAST 272	11,6470	6	1777	1	AD	SKEEP7	
0354	REF	4	LAST 271	11,6471	0	6023	0	TC	-ZEROCHK	

R0355 REGISTER 1777 ALWAYS HOLDS LOWEST (X-1) ADDRESS JUST CHECKED

R0356 REGISTER 1776 HOLDS BEFORE CONTENTS OF X

R0357 REGISTER 1775 HOLDS BEFORE CONTENTS OF X-1

R0358 REGISTER 1774 IS STARTING ADDRESS

R0359 PUTS OWN ADDRESS IN REGISTERS OCT 1774 THROUGH OCT 60 (APPROX. 1.2 SEC)

0360	REF	1		11,6472	3	6004	0	ERASCHK	CAF	CONERAS2	01774
0361				11,6473	5	1777	1	TS	1777		
0362				11,6474	2	0016	1	ERASLOOP	RELINT		
0363				11,6475	1	1777	0	CCS	1777		
0364				11,6476	5	1777	1	TS	1777		
03645				11,6477	2	0017	0	INHINT			
0365				11,6500	2	1777	0	NDX	1777		
0366				11,6501	4	0001	1	CS	0001		
0367	REF	265	LAST 272	11,6502	4	0000	0	CS	A		
0368				11,6503	5	1776	0	TS	1776	PUT C(X) IN 1776	
0370				11,6504	2	1777	0	NDX	1777		
0371				11,6505	4	0000	0	CS	0000		
0372	REF	266	LAST 272	11,6506	4	0000	0	CS	A		
03721				11,6507	5	1775	0	TS	1775	PUT C(X-1) IN 1775	
03722				11,6510	4	1777	0	CS	1777		
03723	REF	267	LAST 272	11,6511	4	0000	0	CS	A		

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03724	REF 3 LAST 148	11,6512	5 1760 1	TS	ERESTORE	IF RESTART, RESTORE C(X) AND C(X-1)
03725		11,6513	2 1777 0	NDX	1777	
03726		11,6514	5 0000 1	TS	0000	PUT OWN ADDRESS IN X-1
03727	REF 6 LAST 272	11,6515	6 4516 1	AD	SCON1	
03728		11,6516	2 1777 0	NDX	1777	
0373		11,6517	5 0001 0	TS	0001	PUT OWN ADDRESS IN X
0374		11,6520	2 1777 0	INDEX	1777	
0375		11,6521	4 0001 1	CS	0001	
0376		11,6522	2 1777 0	INDEX	1777	
0377		11,6523	6 0000 1	AD	0000	
0378	REF 7 LAST 271	11,6524	0 6034 0	TC	-ONECHK	
0379		11,6525	4 1777 0	COMPLMNT CS	1777	
0380		11,6526	2 1777 0	INDEX	1777	
0381		11,6527	5 0000 1	TS	0000	PUTS COMPLEMENT OF ADDRESS IN X-1
0382	REF 1	11,6530	6 4335 0	AD	SCON-1	
0383		11,6531	2 1777 0	INDEX	1777	
0384		11,6532	5 0001 0	TS	0001	PUTS COMPLEMENT OF ADDRESS IN X
0385		11,6533	2 1777 0	INDEX	1777	
0386		11,6534	4 0000 0	CS	0000	
0387		11,6535	2 1777 0	INDEX	1777	
0388		11,6536	6 0001 0	AD	0001	
0389	REF 8 LAST 273	11,6537	0 6034 0	TC	-ONECHK	
0390		11,6540	4 1776 1	CS	1776	
0391	REF 268 LAST 272	11,6541	4 0000 0	CS	A	
0392		11,6542	2 1777 0	NDX	1777	
0393		11,6543	5 0001 0	TS	0001	RESTORE C(X)
0394		11,6544	4 1775 1	CS	1775	
0395	REF 269 LAST 273	11,6545	4 0000 0	CS	A	
03951		11,6546	2 1777 0	NDX	1777	
03952		11,6547	5 0000 1	TS	0000	RESTORE C(X-1)
03953	REF 3 LAST 271	11,6550	4 5504 1	CS	SCONMAX	
0396	REF 4 LAST 273	11,6551	5 1760 1	TS	ERESTORE	IF RESTART, DO NOT RESTORE C(X), C(X-1).
0397	REF 18 LAST 272	11,6552	1 0215 0	CCS	NEWJOB	
0398	REF 3 LAST 272	11,6553	0 7377 0	TC	DUMEXIT	
0399		11,6554	4 1777 0	ENDERAS CS	1777	
0400	REF 1	11,6555	6 6003 1	AD	CONERAS1	+60 OCT
0401	REF 270 LAST 273	11,6556	1 0000 0	CCS	A	
0402		11,6557	14000 1	SCON3/8 OCTAL	14000	
0403		11,6560	63777 0	SCON-3/8 OCTAL	63777	
0404	REF 1	11,6561	0 6474 0	TC	ERASLOOP	
0405	REF 4 LAST 271	11,6562	2 0016 1	INDEX	RELINT	
R0406	CS ALL REGISTERS FROM OCT 57 THROUGH OCT 20					
R0407	ALL COUNTERS, PLUS 4 SPARES, PLUS 4 RJPT REGISTERS,					
R0408	PLUS CYCLE AND SHIFT REGISTERS					
0409	REF 2 LAST 120	11,6563	3 3220 1	CNTRCHK CAF	LOW5	
0410	REF 30 LAST 271	11,6564	5 1771 1	CNTRLOOP TS	SKEEP1	
0411	REF 1	11,6565	6 4512 0	AD	CONCNTR1	+20 OCT
0412	REF 271 LAST 273	11,6566	2 0000 0	INDEX	A	
0413		11,6567	4 0000 0	CS	0000	

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0414	REF	31 LAST 273	11,6570	1 1771 0	CCS	SKEEP1	
0415	REF	1	11,6571	0 6564 0	TC	CNTRLOOP	
0416	REF	1	11,6572	3 6005 1	CYCLSHFT	CAF	CONC+S1
0417	REF	25 LAST 78	11,6573	5 0020 0	TS	CYR	C(CYR) = 12525
0418	REF	11 LAST 96	11,6574	5 0022 1	TS	CYL	C(CYL) = 52524
0419	REF	10 LAST 104	11,6575	5 0021 1	TS	SR	C(SR) = 12525
0420	REF	3 LAST 41	11,6576	5 0023 0	TS	SL	C(SL) = 12524
0421	REF	26 LAST 274	11,6577	6 0020 0	AD	CYR	
0422	REF	12 LAST 274	11,6600	6 0022 1	AD	CYL	
0423	REF	11 LAST 274	11,6601	6 0021 1	AD	SR	
0424	REF	4 LAST 274	11,6602	6 0023 0	AD	SL	
0425	REF	1	11,6603	6 4664 1	AD	CONC+S2	C(A) = -1
0426	REF	9 LAST 273	11,6604	0 6034 0	TC	-ONECHK	
0427	REF	3 LAST 271	11,6605	3 1767 0	XCH	SCOUNT +1	ADD +1 TO SCOUNT +1 REGISTER AT THIS
0428	REF	7 LAST 273	11,6606	6 4516 1	AD	SCON1	POINT OF SELF-CHECK
0429	REF	4 LAST 274	11,6607	3 1767 0	XCH	SCOUNT +1	
0430	REF	3 LAST 271	11,6610	1 1762 1	SOPTION2 CCS	SMODE	TWO OPTIONS LEFT
0431	REF	1	11,6611	0 6414 0	TC	COUNTCHK	
0432	REF	4 LAST 271	11,6612	0 3000 1	TC	SMODECHK	
0433	REF	5 LAST 274	11,6613	0 3000 1	TC	SMODECHK	END OF PULSES + SC + ERASABLE CHECK
0434	REF	1	11,6614	0 6646 0	TC	ROPECHK	CONTINUE WITH SELF-CHECK

R0435 THE BNKCON CONSTANTS (BANK NUMBERS) ARE USED BY ROPECHK AND SHOWSUM
 R0436 THEY MUST BE IN THE FOLLOWING TABLE FORM

0437	11,6615	02000 0	BNKCON1	OCTAL	02000
0438	11,6616	04000 0	BNKCON2	OCTAL	04000
0439	11,6617	06000 1	BNKCON3	OCTAL	06000
0440	11,6620	10000 0	BNKCON4	OCTAL	10000
0441	11,6621	12000 1	BNKCON5	OCTAL	12000
0442	11,6622	14000 1	BNKCON6	OCTAL	14000
0443	11,6623	16000 0	BNKCON7	OCTAL	16000
0444	11,6624	20000 0	BNKCON10	OCTAL	20000
0445	11,6625	22000 1	BNKCON11	OCTAL	22000
0446	11,6626	24000 1	BNKCON12	OCTAL	24000
0447	11,6627	26000 0	BNKCON13	OCTAL	26000
0448	11,6630	30000 1	BNKCON14	OCTAL	30000
0449	11,6631	42000 1	BNKCON21	OCTAL	42000
0450	11,6632	44000 1	BNKCON22	OCTAL	44000
0451	11,6633	46000 0	BNKCON23	OCTAL	46000
0452	11,6634	50000 1	BNKCON24	OCTAL	50000
0453	11,6635	52000 0	BNKCON25	OCTAL	52000
0454	11,6636	54000 0	BNKCON26	OCTAL	54000
0455	11,6637	56000 1	BNKCON27	OCTAL	56000
0456	11,6640	60000 1	BNKCON30	OCTAL	60000
0457	11,6641	62000 0	BNKCON31	OCTAL	62000
0458	11,6642	64000 0	BNKCON32	OCTAL	64000
0459	11,6643	66000 1	BNKCON33	OCTAL	66000
0460	11,6644	70000 0	BNKCON34	OCTAL	70000

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0461 11,6645 00000 1 BANKSTOP OCTAL 00000 PUT +0 AFTER LAST BANK TO BE CHECKED

R0462 TAKES BETWEEN 17 AND 20 SECONDS FOR ROPECHK TO GO THROUGH ALL BANKS.
 R0463 INITIALIZE 2OPTIONS TO -1 TO PERFORM ROPECHK
 R0464 SKEEP1 HOLDS SUM
 R0465 SKEEP2 HOLDS PRESENT CONTENTS OF ADDRESS IN ROPCHK AND SHOWSUM ROUTINES
 R0466 SKEEP2 HOLDS ACTUAL BANK NUMBER USED IN THE BANK REGISTER BUT CYCLED 5
 R0467 PLACES LEFT FOR DISPLAY IN SHOWSUM ROUTINE
 R0468 SKEEP3 HOLDS PRESENT ADDRESS (02000 TO 05777 IN FXX BANKS)
 R0469 (00000 TO 01777 IN FXSW BANKS)
 R0470 SKEEP3 HOLDS BUGGER WORD FOR DISPLAY IN SHOWSUM ROUTINE
 R0471 SKEEP4 HOLDS ADDRESS OF BANK NUMBER
 R0472 SKEEP5 COUNTS TWO SUCCESSIVE TC SELF WORDS
 R0473 SKEEP6 HOLDS END OF BANK NUMBERS
 R0474 SKEEP7 COUNTS DOWN FIXED FIXED BANKS

0475	REF	8	LAST 274	11,6646	4	4516	0	ROPECHK	CS	SCON1	
0476	REF	1		11,6647	5	1761	0		TS	2OPTIONS	
0477	REF	1		11,6650	3	7023	1	FXXCHK	CAF	FXCON1	43776
0478	REF	4	LAST 272	11,6651	5	1776	0		TS	SKEEP6	
0479	REF	1		11,6652	3	6615	0		CAF	BNKCON1	02000
0480	REF	4	LAST 269	11,6653	5	1773	0		TS	SKEEP3	
0481	REF	1		11,6654	3	6766	0		CAF	STBNKCON	
0482	REF	6	LAST 271	11,6655	5	1774	1		TS	SKEEP4	
0483	REF	9	LAST 275	11,6656	3	4516	1		CAF	SCON1	
0484	REF	5	LAST 272	11,6657	5	1777	1		TS	SKEEP7	
0485	REF	3	LAST 271	11,6660	3	5501	0	FXXBNKS	CAF	SCON0	
0486	REF	32	LAST 274	11,6661	5	1771	1		TS	SKEEP1	
0487	REF	5	LAST 270	11,6662	3	4515	1		CAF	SCON2	
0488	REF	9	LAST 272	11,6663	5	1775	0		TS	SKEEP5	COUNTS DOWN TWO TC SELF WORDS
0489	REF	5	LAST 275	11,6664	2	1773	1	FXADRS	INDEX	SKEEP3	
0490				11,6665	3	0000	1		CAF	0000	
0491	REF	1		11,6666	0	6774	0		TC	ADSUM	
0492	REF	1		11,6667	0	6721	0		TC	ADRSCHK	

0493	REF	6	LAST 275	11,6670	5	1777	1	BANK2	TS	SKEEP7	
0494	REF	1		11,6671	3	7024	0		CAF	FXCON2	45776
0495	REF	5	LAST 275	11,6672	5	1776	0		TS	SKEEP6	
0496	REF	1		11,6673	3	6616	0		CAF	BNKCON2	04000
0497	REF	6	LAST 275	11,6674	5	1773	0		TS	SKEEP3	
0498	REF	1		11,6675	0	6660	1		TC	FXXBNKS	

0499	REF	6	LAST 275	11,6676	3	4515	1	FXSWBNKS	CAF	SCON2	
0500	REF	10	LAST 275	11,6677	5	1775	0		TS	SKEEP5	COUNTS DOWN TWO TC SELF WORDS
0501	REF	4	LAST 275	11,6700	3	5501	0		CAF	SCON0	
0502	REF	33	LAST 275	11,6701	5	1771	1		TS	SKEEP1	
0503	REF	7	LAST 275	11,6702	5	1773	0		TS	SKEEP3	
0504	REF	8	LAST 275	11,6703	6	1773	0	SWADRS	AD	SKEEP3	
0505	REF	7	LAST 275	11,6704	2	1774	0		INDEX	SKEEP4	
0506				11,6705	6	0000	1		AD	0000	
0507	REF	1		11,6706	0	5730	0		TC	DATA CALL	

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0508	REF	2	LAST 275	11,6707	0	6774	0		TC	ADSUM	
0509	REF	1		11,6710	6	6617	1		AD	BNKCON3	06000
0510	REF	2	LAST 275	11,6711	0	6721	0		TC	ADRSCHK	
R0511	SUBROUTINES ADRS+1, ADRSCHK, OPTION, NXTBNK, ADSUM, AND BNKCHK ARE										
R0512	USED BY BOTH FXFX AND FXSW BANKS										
0513	REF	9	LAST 275	11,6712	3	1773	0	ADRS+1	XCH	SKEEP3	
0514	REF	10	LAST 275	11,6713	6	4516	1		AD	SCON1	
0515	REF	10	LAST 276	11,6714	5	1773	0		TS	SKEEP3	
0516	REF	7	LAST 275	11,6715	1	1777	0		CCS	SKEEP7	
0517	REF	1		11,6716	0	6664	0		TC	FXADRS	
0518	REF	2	LAST 276	11,6717	0	6664	0		TC	FXADRS	
0519	REF	1		11,6720	0	6703	0		TC	SWADRS	
0520	REF	272	LAST 273	11,6721	1	0000	0	ADRSCHK	CCS	A	
0521	REF	1		11,6722	0	6730	0		TC	CONTINU	
0522	REF	2	LAST 276	11,6723	0	6730	0		TC	CONTINU	
0523	REF	3	LAST 276	11,6724	0	6730	0		TC	CONTINU	
0524	REF	11	LAST 275	11,6725	1	1775	1		CCS	SKEEP5	
0525	REF	12	LAST 276	11,6726	5	1775	0		TS	SKEEP5	
0526	REF	4	LAST 276	11,6727	0	6735	0		TC	CONTINU +5	
0527	REF	13	LAST 276	11,6730	1	1775	1	CONTINU	CCS	SKEEP5	
0528				11,6731	0	6733	0		TC	+2	
0529	REF	1		11,6732	0	6743	1		TC	SOPTION	
0530	REF	7	LAST 275	11,6733	3	4515	1		CAF	SCON2	
0531	REF	14	LAST 276	11,6734	5	1775	0		TS	SKEEP5	MAKES SURE TWO CONSECUTIVE TC SELF WORDS
0532	REF	19	LAST 273	11,6735	1	0215	0		CCS	NEWJOB	
0533	REF	4	LAST 273	11,6736	0	7377	0		TC	DUMEXIT	
0534	REF	11	LAST 276	11,6737	4	1773	1		CS	SKEEP3	
0535	REF	6	LAST 275	11,6740	6	1776	0		AD	SKEEP6	
0536	REF	273	LAST 276	11,6741	5	0000	1		TS	A	UNDERFLOW AT END OF BANK
0537	REF	1		11,6742	0	6712	0		TC	ADRS+1	STAY IN SAME BANK
0538	REF	2	LAST 275	11,6743	1	1761	1	SOPTION	CCS	2OPTIONS	
0539	REF	2	LAST 265	11,6744	0	7037	1		TC	SDISPLAY	
0540	REF	1		11,6745	0	6750	0		TC	NXTBNK	
0541	REF	1		11,6746	0	7005	0		TC	BNKCHK	
0542	REF	10	LAST 274	11,6747	0	6034	0		TC	-ONECHK	
0543	REF	8	LAST 275	11,6750	3	1774	1	NXTBNK	XCH	SKEEP4	
0544	REF	11	LAST 276	11,6751	6	4516	1		AD	SCON1	
0545	REF	9	LAST 276	11,6752	5	1774	1		TS	SKEEP4	
0546	REF	8	LAST 276	11,6753	1	1777	0		CCS	SKEEP7	
0547	REF	1		11,6754	0	6670	0		TC	BANK2	
0548				11,6755	0	6756	0		TC	+1	
0549	REF	12	LAST 276	11,6756	4	4516	0		CS	SCON1	
0550	REF	9	LAST 276	11,6757	5	1777	1		TS	SKEEP7	
0551	REF	1		11,6760	3	6772	0		CAF	SWCON	41776
0552	REF	7	LAST 276	11,6761	5	1776	0		TS	SKEEP6	
0553	REF	10	LAST 276	11,6762	2	1774	0	ENDBANKS	INDEX	SKEEP4	

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0554				11,6763	4 0000 0		CS	0000	
0555	REF	274	LAST 276	11,6764	1 0000 0		CCS	A	
0556	REF	1		11,6765	0 6676 0		TC	FXSWBNKS	
0557	REF	2	LAST 275	11,6766	06615 0	STBNKCON	ADRES	BNKCON1	CONSTANT. STARTING ADDRESS OF BANK LIST
0558	REF	2	LAST 277	11,6767	0 6676 0		TC	FXSWBNKS	
0559	REF	3	LAST 276	11,6770	1 1761 1		CCS	2OPTIONS	END OF FIXED MEMORY CHECKING
0560	REF	2	LAST 257	11,6771	0 7025 1		TC	SHOWSUM	END OF SHOWSUM, START AGAIN
0561				11,6772	41776 1	SWCON	OCTAL	41776	CONSTANT
0562	REF	1		11,6773	0 7102 0		TC	1/2OPTN	END OF BANK SUMCHECKING SUBROUTINE
0563	REF	9	LAST 269	11,6774	5 1772 1	ADSUM	TS	SKEEP2	
0564	REF	34	LAST 275	11,6775	6 1771 1		AD	SKEEP1	
0565	REF	35	LAST 277	11,6776	5 1771 1		TS	SKEEP1	
0566	REF	5	LAST 275	11,6777	3 5501 0		CAF	SCON0	
0567	REF	36	LAST 277	11,7000	6 1771 1		AD	SKEEP1	
0568	REF	37	LAST 277	11,7001	5 1771 1		TS	SKEEP1	
0569	REF	10	LAST 277	11,7002	4 1772 0		CS	SKEEP2	
0570	REF	12	LAST 276	11,7003	6 1773 0		AD	SKEEP3	
0571	REF	169	LAST 272	11,7004	0 0001 0		TC	Q	
0572	REF	170	LAST 277	11,7005	3 0001 0	BNKCHK	XCH	Q	
0573	REF	4	LAST 266	11,7006	5 0115 1		TS	QADRS	
0574	REF	38	LAST 277	11,7007	1 1771 0		CCS	SKEEP1	
0575				11,7010	0 7014 0		TC	+4	
0576	REF	41	LAST 272	11,7011	0 6013 0		TC	ERRORS	
0577				11,7012	0 7014 0		TC	+2	
0578	REF	42	LAST 277	11,7013	0 6013 0		TC	ERRORS	
0579	REF	39	LAST 277	11,7014	5 1771 1		TS	SKEEP1	
0580	REF	11	LAST 276	11,7015	2 1774 0		INDEX	SKEEP4	
0581				11,7016	3 0000 1		CAF	0000	
0582	REF	1		11,7017	0 3203 0		TC	LEFT5	CYCLES LEFT 5 PLACES
0583	REF	275	LAST 277	11,7020	4 0000 0		CS	A	
0584	REF	40	LAST 277	11,7021	6 1771 1		AD	SKEEP1	
0585	REF	5	LAST 277	11,7022	0 0115 1		TC	QADRS	
0586				11,7023	43776 0	FXCON1	OCTAL	43776	CONSTANT
0587				11,7024	45776 0	FXCON2	OCTAL	45776	CONSTANT
R0588	INITIALIZE 2OPTIONS TO +1 TO PERFORM SHOWSUM								
R0589	START OF ROUTINE THAT DISPLAYS SUM OF EACH BANK								
0590	REF	13	LAST 276	11,7025	3 4516 1	SHOWSUM	CAF	SCON1	
0591	REF	4	LAST 277	11,7026	5 1761 0		TS	2OPTIONS	SHOWSUM OPTION
0592	REF	6	LAST 277	11,7027	3 5501 0		CAF	SCON0	
0593	REF	4	LAST 274	11,7030	5 1762 0		TS	SMODE	PUT SELF-CHECK TO SLEEP
0594	REF	4	LAST 271	11,7031	2 0017 0		INDEX	INHINT	
0595	REF	1		11,7032	3 4504 1		CAF	PRI02	
0596	REF	10	LAST 255	11,7033	0 2052 1		TC	NOVAC	
0597	REF	1		11,7034	22650 1		CADR	FXFXCHK	
0598	REF	5	LAST 273	11,7035	2 0016 1		INDEX	RELINT	
0599	REF	33	LAST 264	11,7036	0 2124 1		TC	ENDOFJOB	

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0600	REF	12	LAST	277	11,7037	2	1774	0	SDISPLAY	INDEX	SKEEP4	
0601					11,7040	3	0000	1		CAF	0000	
0602	REF	2	LAST	277	11,7041	0	3203	0		TC	LEFT5	CYCLES LEFT 5 PLACES
0603	REF	11	LAST	277	11,7042	5	1772	1		TS	SKEEP2	HOLDS BANK NUMBER FOR DSKY DISPLAY
0604	REF	10	LAST	276	11,7043	1	1777	0		CCS	SKEEP7	12 INSTRUCTIONS TO PUT BUGGER WORD
0605	REF	1			11,7044	0	7054	1		TC	FXFXWORD	IN SKEEP3.
0606	REF	2	LAST	278	11,7045	0	7054	1		TC	FXFXWORD	
0607	REF	13	LAST	277	11,7046	4	1773	1		CS	SKEEP3	GETS FXSW BUGGER WORD
0608	REF	276	LAST	277	11,7047	4	0000	0		CS	A	
0609	REF	13	LAST	278	11,7050	2	1774	0		INDEX	SKEEP4	
0610					11,7051	6	0000	1		AD	0000	
0611	REF	2	LAST	275	11,7052	0	5730	0		TC	DATA CALL	
0612					11,7053	0	7056	0		TC	+3	
0613	REF	14	LAST	278	11,7054	2	1773	1	FXFXWORD	INDEX	SKEEP3	GETS FXFX BUGGER WORD
0614					11,7055	3	0000	1		CAF	0000	
0615	REF	15	LAST	278	11,7056	5	1773	0		TS	SKEEP3	SKEEP3 NOW HOLDS BUGGER WORD
0616	REF	11	LAST	261	11,7057	0	3302	0		TC	GRABDSP	
0617	REF	11	LAST	261	11,7060	0	3310	0		TC	PREGBSY	
0618	REF	1			11,7061	3	6006	1	NOKILL	CAF	SUMADRS	
0619	REF	269	LAST	262	11,7062	5	0117	0		TS	MPAC +2	
0620	REF	1			11,7063	3	6007	0		CAF	VNCON	
0621	REF	23	LAST	262	11,7064	0	3100	0		TC	NVSUB	
0622	REF	1			11,7065	0	7100	1		TC	SBUSY	
0623	REF	34	LAST	262	11,7066	0	5654	0		TC	BANKCALL	
0624	REF	3	LAST	249	11,7067		14000	1		CADR	FLASHON	
0625	REF	16	LAST	262	11,7070	0	3136	0		TC	ENDIDLE	
0626					11,7071	0	7074	0		TC	+3	FINISHED WITH SHOWSUM
0627	REF	1			11,7072	0	7076	1		TC	SALLOW	PROCEED TO NEXT BANK
0628	REF	1			11,7073	0	7061	1		TC	NOKILL	SO CAN LOAD WITHOUT KILLING SHOWSUM.
0629	REF	12	LAST	264	11,7074	0	3362	0		TC	FREEDSP	
0630	REF	34	LAST	277	11,7075	0	2124	1		TC	ENDOFJOB	
0631	REF	13	LAST	278	11,7076	0	3362	0	SALLOW	TC	FREEDSP	ALLOWS ANOTHER JOB TO DISPLAY. LEAVES
0632	REF	2	LAST	276	11,7077	0	6750	0		TC	NXTBNK	SUM IN DSKY FOR 10 SEC. AFTER PROC. VERB
0633	REF	1			11,7100	3	6010	0	SBUSY	CAF	SCADR	
0634	REF	2	LAST	210	11,7101	0	3320	0		TC	NVSUBUSY	
0635	REF	5	LAST	277	11,7102	1	1762	1	1/20PTN	CCS	SMODE	
0636					11,7103	0	7107	0		TC	+4	STAY IN ROPECHK LOOP
0637	REF	1			11,7104	0	7367	1		TC	SOPTION3 -3	
0638	REF	6	LAST	274	11,7105	0	3000	1		TC	SMODECHK	SHOULD NOT COME HERE
0639	REF	1			11,7106	0	7113	0		TC	MPNMBS	CONTINUE WITH SELF-CHECK
0640	REF	5	LAST	274	11,7107	3	1770	0		XCH	SCOUNT +2	
0641	REF	14	LAST	277	11,7110	6	4516	1		AD	SCON1	
0642	REF	6	LAST	278	11,7111	3	1770	0		XCH	SCOUNT +2	
0643	REF	2	LAST	274	11,7112	0	6646	0		TC	ROPECHK	
R0644	MULTIPLY SUBROUTINES TAKE APPROXIMATELY 30 SECONDS											
R0645	(37777) X (37777 THROUGH 00001)											

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R0646 C(A) COUNTS DOWN. C(LP) COUNTS UP.

0647	REF	11	LAST	272	11,7113	3	4476	0	MPNMBRS	CAF	SCON+MAX
0648	REF	12	LAST	278	11,7114	5	1772	1		TS	SKEEP2
0649	REF	12	LAST	279	11,7115	3	4476	0		CAF	SCON+MAX
0650					11,7116	2	5777	1		EXTEND	
0651	REF	13	LAST	279	11,7117	4	1772	0		MP	SKEEP2
0652	REF	39	LAST	269	11,7120	6	0003	1		AD	LP
0653	REF	277	LAST	278	11,7121	4	0000	0		CS	A
0654	REF	13	LAST	279	11,7122	6	4476	0		AD	SCON+MAX
0655	REF	5	LAST	272	11,7123	0	6023	0		TC	-ZEROCHK
0656	REF	20	LAST	276	11,7124	1	0215	0		CCS	NEWJOB
0657	REF	5	LAST	276	11,7125	0	7377	0		TC	DUMEXIT
0658	REF	14	LAST	279	11,7126	1	1772	0		CCS	SKEEP2
0659	REF	15	LAST	279	11,7127	5	1772	1		TS	SKEEP2
0660	REF	16	LAST	279	11,7130	1	1772	0		CCS	SKEEP2
0661	REF	2	LAST	278	11,7131	0	7115	0		TC	MPNMBRS +2

C(A) = 37777

R0662 (-1) X (37777 THROUGH 00001)

0663	REF	14	LAST	279	11,7132	3	4476	0		CAF	SCON+MAX
0664	REF	17	LAST	279	11,7133	5	1772	1		TS	SKEEP2
0665	REF	2	LAST	273	11,7134	3	4335	0	MPHIGH1	CAF	SCON-1
0666					11,7135	2	5777	1		EXTEND	
0667	REF	18	LAST	279	11,7136	4	1772	0		MP	SKEEP2
0668	REF	40	LAST	279	11,7137	6	0003	1		AD	LP
0669	REF	19	LAST	279	11,7140	6	1772	1		AD	SKEEP2
0670	REF	6	LAST	279	11,7141	0	6023	0		TC	-ZEROCHK
0671	REF	21	LAST	279	11,7142	1	0215	0		CCS	NEWJOB
0672	REF	6	LAST	279	11,7143	0	7377	0		TC	DUMEXIT
0673	REF	20	LAST	279	11,7144	1	1772	0		CCS	SKEEP2
0674	REF	21	LAST	279	11,7145	5	1772	1		TS	SKEEP2
0675	REF	22	LAST	279	11,7146	1	1772	0		CCS	SKEEP2
0676	REF	1			11,7147	0	7134	0		TC	MPHIGH1

C(A) = -0

R0677 INTERCHANGE MULTIPLIER AND MULTIPLICAND
R0678 (37777 THROUGH 00001) X (37777)

R0679 C(A) COUNTS DOWN. C(LP) COUNTS UP.

0680	REF	15	LAST	279	11,7150	3	4476	0		CAF	SCON+MAX
0681	REF	41	LAST	277	11,7151	5	1771	1		TS	SKEEP1
0682	REF	42	LAST	279	11,7152	4	1771	0	MPAGAIN	CS	SKEEP1
0683	REF	278	LAST	279	11,7153	4	0000	0		CS	A
0684					11,7154	2	5777	1		EXTEND	
0685	REF	16	LAST	279	11,7155	4	4476	1		MP	SCON+MAX
0686	REF	41	LAST	279	11,7156	6	0003	1		AD	LP
0687	REF	279	LAST	279	11,7157	4	0000	0		CS	A
0688	REF	17	LAST	279	11,7160	6	4476	0		AD	SCON+MAX
0689	REF	7	LAST	279	11,7161	0	6023	0		TC	-ZEROCHK
0690	REF	22	LAST	279	11,7162	1	0215	0		CCS	NEWJOB
0691	REF	7	LAST	279	11,7163	0	7377	0		TC	DUMEXIT
0692	REF	43	LAST	279	11,7164	1	1771	0		CCS	SKEEP1
0693	REF	44	LAST	279	11,7165	5	1771	1		TS	SKEEP1
0694	REF	45	LAST	279	11,7166	1	1771	0		CCS	SKEEP1

C(A) = 37777

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0695	REF 1	11,7167	0 7152 0	TC	MPAGAIN	
R0696	(37777 THROUGH 00001) X (-1)					
0697	REF 18 LAST 279	11,7170	3 4476 0	CAF	SCON+MAX	
0698	REF 46 LAST 279	11,7171	5 1771 1	TS	SKEEP1	
0699	REF 47 LAST 280	11,7172	4 1771 0	CS	SKEEP1	MPHIGH2
0700	REF 280 LAST 279	11,7173	4 0000 0	CS	A	
0701		11,7174	2 5777 1	EXTEND		
0702	REF 3 LAST 279	11,7175	4 4335 1	MP	SCON-1	
0703	REF 42 LAST 279	11,7176	6 0003 1	AD	LP	
0704	REF 48 LAST 280	11,7177	6 1771 1	AD	SKEEP1	
0705	REF 8 LAST 279	11,7200	0 6023 0	TC	-ZEROCHK	
0706	REF 23 LAST 279	11,7201	1 0215 0	CCS	NEWJOB	
0707	REF 8 LAST 279	11,7202	0 7377 0	TC	DUMEXIT	
0708	REF 49 LAST 280	11,7203	1 1771 0	CCS	SKEEP1	
0709	REF 50 LAST 280	11,7204	5 1771 1	TS	SKEEP1	
0710	REF 51 LAST 280	11,7205	1 1771 0	CCS	SKEEP1	
0711	REF 1	11,7206	0 7172 1	TC	MPHIGH2	
0712	REF 1	11,7207	0 7212 1	TC	DV1	
R0713	THESE 2 CONSTANTS USED BY DIVIDE SUBROUTINES					
0714		11,7210	37776 0	DVCON1	DCTAL	37776
0715		11,7211	50001 0	DVCON3	DCTAL	50001
R0716	DIVIDE 1/4 BY 3/8					
R0717	ONCE THROUGH ALL DEVIDE SUBROUTINES TAKES APPROX. 0.012 SECONDS					
R0718	TOTAL TIME IN DEVIDE SUBROUTINES IS APPROX. 20 SECONDS					
0719	REF 2 LAST 272	11,7212	3 6004 0	DV1	CAF	CONERAS2 01774
0720	REF 11 LAST 278	11,7213	5 1777 1	TS	SKEEP7	
0721	REF 3 LAST 269	11,7214	3 6557 0	DV1++	CAF	SCON3/8
0722	REF 171 LAST 277	11,7215	5 0001 0	TS	Q	
0723	REF 2 LAST 269	11,7216	3 4502 1	CAF	SCON1/4	
0724		11,7217	2 5777 1	EXTEND		
0725	REF 172 LAST 280	11,7220	5 0001 0	DV	Q	C(A) = 25252
0726	REF 52 LAST 280	11,7221	5 1771 1	TS	SKEEP1	
0727	REF 43 LAST 280	11,7222	3 0003 1	XCH	LP	
0728	REF 23 LAST 279	11,7223	5 1772 1	TS	SKEEP2	
0729	REF 173 LAST 280	11,7224	4 0001 1	DV1+-	CS	Q +1/4
0730		11,7225	2 5777 1	EXTEND		
0731	REF 3 LAST 269	11,7226	5 6560 1	DV	SCON-3/8	C(A) = 52525
0732	REF 53 LAST 280	11,7227	6 1771 1	AD	SKEEP1	C(A) = -0
0733	REF 15 LAST 276	11,7230	5 1775 0	TS	SKEEP5	
0734	REF 44 LAST 280	11,7231	3 0003 1	XCH	LP	
0735	REF 16 LAST 278	11,7232	5 1773 0	TS	SKEEP3	
0736	REF 174 LAST 280	11,7233	3 0001 0	DV1--	XCH	Q -1/4
0737		11,7234	2 5777 1	EXTEND		
0738	REF 4 LAST 280	11,7235	5 6560 1	DV	SCON-3/8	
0739	REF 54 LAST 280	11,7236	5 1771 1	TS	SKEEP1	
0740	REF 45 LAST 280	11,7237	3 0003 1	XCH	LP	
0741	REF 14 LAST 278	11,7240	5 1774 1	TS	SKEEP4	
0742	REF 175 LAST 280	11,7241	3 0001 0	DV1--	XCH	Q
0743		11,7242	2 5777 1	EXTEND		

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0744	REF	4	LAST	280	11,7243	5	6557	0	DV	SCON3/8	
0745	REF	55	LAST	280	11,7244	6	1771	1	AD	SKEEP1	C(A) = -0
0746	REF	56	LAST	281	11,7245	5	1771	1	TS	SKEEP1	
0747	REF	46	LAST	280	11,7246	4	0003	0	CS	LP	C(A) = 37776
0748	REF	57	LAST	281	11,7247	6	1771	1	AD	SKEEP1	C(A) = 37776
0749	REF	24	LAST	280	11,7250	6	1772	1	AD	SKEEP2	C(A) = 37777
0750	REF	17	LAST	280	11,7251	6	1773	0	AD	SKEEP3	C(A) = -0
0751	REF	15	LAST	280	11,7252	6	1774	1	AD	SKEEP4	C(A) = +1
0752	REF	16	LAST	280	11,7253	6	1775	0	AD	SKEEP5	C(A) = +1
0753	REF	11	LAST	276	11,7254	0	6033	1	TC	-ONECHK -1	

R0754 DIVIDE INCREASING BIT POSITIONS BY 1/2 (13 DEVISIONS)

0755	REF	15	LAST	278	11,7255	3	4516	1	DV2	CAF	SCON1	
0756	REF	25	LAST	281	11,7256	5	1772	1	DV2LOOP	TS	SKEEP2	
0757					11,7257	2	5777	1		EXTEND		
0758	REF	2	LAST	267	11,7260	5	4501	1	DV	SCON1/2		
0759	REF	18	LAST	281	11,7261	5	1773	0	TS	SKEEP3		
0760	REF	176	LAST	280	11,7262	6	0001	0	AD	Q	Q = -0	
0761	REF	27	LAST	274	11,7263	5	0020	0	TS	CYR		
0762	REF	28	LAST	281	11,7264	4	0020	1	CS	CYR		
0763	REF	26	LAST	281	11,7265	6	1772	1	AD	SKEEP2		
0764	REF	47	LAST	281	11,7266	6	0003	1	AD	LP		
0765	REF	12	LAST	281	11,7267	0	6033	1	TC	-ONECHK -1		
0766	REF	19	LAST	281	11,7270	4	1773	1	CS	SKEEP3		
0767	REF	281	LAST	280	11,7271	6	0000	1	AD	A		
0768	REF	282	LAST	281	11,7272	5	0000	1	TS	A	OVERFLOW AT END OF DV2 SUBROUTINE	
0769					11,7273	0	7275	0	TC	+2		
0770	REF	1			11,7274	0	7300	0	TC	DV3		
0771	REF	20	LAST	281	11,7275	3	1773	0	XCH	SKEEP3		
0772	REF	16	LAST	281	11,7276	6	4516	1	AD	SCON1		
0773	REF	1			11,7277	0	7256	1	TC	DV2LOOP		

R0774 DIVIDE SEPARATE DECREASING BIT POSITIONS BY 37777 (14 DEVISIONS)
 R0775 AFTER C(A) = BEFORE C(A) AND AFTER C(Q) = -C(A)

0776	REF	19	LAST	280	11,7300	4	4476	1	DV3	CS	SCON+MAX	
0777	REF	29	LAST	281	11,7301	5	0020	0		TS	CYR	C(CYR) = 20000
0778	REF	30	LAST	281	11,7302	4	0020	1	DV3LOOP	CS	CYR	
0779	REF	283	LAST	281	11,7303	4	0000	0		CS	A	
0780					11,7304	2	5777	1		EXTEND		
0781	REF	20	LAST	281	11,7305	5	4476	0	DV	SCON+MAX		
0782	REF	16	LAST	281	11,7306	5	1774	1	TS	SKEEP4		
0783	REF	177	LAST	281	11,7307	6	0001	0	AD	Q		
0784	REF	9	LAST	280	11,7310	0	6023	0	TC	-ZEROCHK		
0785	REF	17	LAST	281	11,7311	1	1774	0	CCS	SKEEP4		
0786	REF	284	LAST	281	11,7312	1	0000	0	CCS	A		
0787	REF	1			11,7313	0	7302	1	TC	DV3LOOP		

R0788 DEVIDE 37776 BY 37776

R0789 C(A) = +MAX FOR POSITIVE SIGN AND -MAX FOR NEGATIVE SIGN

R0790 C(Q) = - ABSOLUTE VALUE OF DEVISOR = 40001

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0791	REF	1		11,7314	3 7210 0	DV4++	CAF	DVCON1	37776
0792				11,7315	2 5777 1		EXTEND		
0793	REF	2	LAST 282	11,7316	5 7210 0		DV	DVCON1	C(A) = 37777 C(Q) = -37776
0794	REF	178	LAST 281	11,7317	6 0001 0		AD	Q	
0795	REF	13	LAST 281	11,7320	0 6033 1		TC	-ONECHK -1	
0796	REF	48	LAST 281	11,7321	3 0003 1		XCH	LP	C(LP) = +1
0797	REF	17	LAST 281	11,7322	5 1775 0		TS	SKEEP5	
0798	REF	3	LAST 282	11,7323	4 7210 1		CS	DVCON1	
0799	REF	18	LAST 281	11,7324	5 1774 1		TS	SKEEP4	
0800	REF	4	LAST 282	11,7325	3 7210 0	DV4+-	CAF	DVCON1	
0801				11,7326	2 5777 1		EXTEND		
0802	REF	19	LAST 282	11,7327	5 1774 1		DV	SKEEP4	C(A) = 40000 C(Q) = -37776
0803	REF	285	LAST 281	11,7330	4 0000 0		CS	A	
0804	REF	179	LAST 282	11,7331	6 0001 0		AD	Q	
0805	REF	14	LAST 282	11,7332	0 6033 1		TC	-ONECHK -1	
0806	REF	49	LAST 282	11,7333	6 0003 1		AD	LP	C(LP) = 40000
0807	REF	18	LAST 282	11,7334	6 1775 0		AD	SKEEP5	
0808	REF	19	LAST 282	11,7335	5 1775 0		TS	SKEEP5	-37776
0809	REF	5	LAST 282	11,7336	4 7210 1	DV4--	CS	DVCON1	
0810				11,7337	2 5777 1		EXTEND		
0811	REF	6	LAST 282	11,7340	5 7210 0		DV	DVCON1	C(A) = 40000 C(Q) = -37776
0812	REF	286	LAST 282	11,7341	4 0000 0		CS	A	
0813	REF	180	LAST 282	11,7342	6 0001 0		AD	Q	
0814	REF	15	LAST 282	11,7343	0 6033 1		TC	-ONECHK -1	
0815	REF	50	LAST 282	11,7344	4 0003 0		CS	LP	C(LP) = 40001
0816	REF	20	LAST 282	11,7345	6 1775 0		AD	SKEEP5	
0817	REF	21	LAST 282	11,7346	5 1775 0		TS	SKEEP5	-0
0818	REF	7	LAST 282	11,7347	4 7210 1	DV4--	CS	DVCON1	
0819	REF	20	LAST 282	11,7350	5 1774 1		TS	SKEEP4	
0820				11,7351	2 5777 1		EXTEND		
0821	REF	21	LAST 282	11,7352	5 1774 1		DV	SKEEP4	C(A) = 37777 C(Q) = -37776
0822	REF	181	LAST 282	11,7353	6 0001 0		AD	Q	
0823	REF	16	LAST 282	11,7354	0 6033 1		TC	-ONECHK -1	
0824	REF	51	LAST 282	11,7355	4 0003 0		CS	LP	C(LP) = +1
0825	REF	22	LAST 282	11,7356	6 1775 0		AD	SKEEP5	
0826	REF	17	LAST 282	11,7357	0 6034 0		TC	-ONECHK	
0827	REF	24	LAST 280	11,7360	1 0215 0		CCS	NEWJOB	
0828	REF	9	LAST 280	11,7361	0 7377 0		TC	DUMEXIT	
0829	REF	12	LAST 280	11,7362	1 1777 0		CCS	SKEEP7	
0830				11,7363	0 7365 0		TC	+2	
0831	REF	2	LAST 278	11,7364	0 7367 1		TC	SOPTION3 -3	
0832	REF	13	LAST 282	11,7365	5 1777 1		TS	SKEEP7	
0833	REF	1		11,7366	0 7214 1		TC	DV1++	BACK TO DEVIDE LOOP
0834	REF	7	LAST 278	11,7367	3 1770 0		XCH	SCOUNT +2	ADD +1 TO SCOUNT +2 REGISTER AT THIS
0835	REF	17	LAST 281	11,7370	6 4516 1		AD	SCON1	POINT OF SELF-CHECK
0836	REF	8	LAST 282	11,7371	3 1770 0		XCH	SCOUNT +2	
0837	REF	6	LAST 278	11,7372	1 1762 1	SOPTION3	CCS	SMODE	
0838	REF	3	LAST 279	11,7373	0 7113 0		TC	MPNMBRS	STAY IN MPNMBRS LOOP
0839	REF	7	LAST 278	11,7374	0 3000 1		TC	SMODECHK	

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0840	REF	8 LAST 282	11,7375	0 3000 1
0841	REF	9 LAST 283	11,7376	0 3000 1

TC	SMODECHK
TC	SMODECHK

SHOULD NOT COME HERE
END OF SELF-CHECK. START AGAIN

0843			3000
------	--	--	------

BANK	1
------	---

270
0
-32.5

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P0844 COMPUTER ACTIVITY LIGHT (GREEN LIGHT) MAINTENANCE.

0846	REF	25	LAST	282	3000	1	0215	0	SMODECHK	CCS	NEWJOB	SEE IF ITS TIME FOR A CHANGE.
0847	REF	10	LAST	282	3001	0	7377	0		TC	DUMEXIT	

0848	REF	7	LAST	282	3002	1	1762	1	ADVAN	CCS	SMODE	SEE IF SELF-CHECK IS WANTED
0849	REF	1			3003	0	6045	0		TC	CCSCHK	YES PULSES ONLY
0850	REF	10	LAST	283	3004	0	3000	1		TC	SMODECHK	
0851	REF	2	LAST	284	3005	0	6045	0		TC	CCSCHK	YES PULSES + SC + ERASABLE
0852	REF	3	LAST	284	3006	0	6045	0		TC	CCSCHK	YES ALL OF SELF-CHECK

0858							11,7377				BANK	11	
0859	REF	182	LAST	282	11,7377	3	0001	0	DUMEXIT	XCH	Q		
0860	REF	6	LAST	277	11,7400	5	0115	1		TS	QADRS	STORE RETURN ADDRESS	
0861	REF	41	LAST	241	11,7401	4	5503	0		CS	TWO	TURN ON GREEN LIGHT (COMP ACT) AND	
0862					11,7402	2	0017	0		INHINT			
0863	REF	20	LAST	168	11,7403	7	0011	0		MASK	OUT1	GO TO CHANG1.	
0864	REF	42	LAST	284	11,7404	6	5503	1		AD	TWO		
0865	REF	21	LAST	284	11,7405	5	0011	1		TS	OUT1		
0866	REF	2	LAST	93	11,7406	0	2101	0		TC	CHANG1		
0867	REF	43	LAST	284	11,7407	4	5503	0	DUMYJOB	CS	TWO	IDLING AGAIN- TURN OFF ACTIVITY LIGHT	
0868					11,7410	2	0017	0		INHINT			
0869	REF	22	LAST	284	11,7411	7	0011	0		MASK	OUT1	LIGHT.	
0870	REF	23	LAST	284	11,7412	5	0011	1		TS	OUT1		
0871					11,7413	2	0016	1		RELINT			
0872	REF	7	LAST	284	11,7414	0	0115	1		TC	QADRS	BACK TO CHECKING COMPUTER	
0873	REF	1			11,7415	3	7420	0	DUMMYJOB	CAF	SMODECON	ENTER AT SMODECHK IF THERE IS A	
0874	REF	8	LAST	284	11,7416	5	0115	1		TS	QADRS	FRESH START OR A GOJAM	
0875	REF	1			11,7417	0	7407	0		TC	DUMYJOB		
0876	REF	11	LAST	284	11,7420	03000	1		SMODECON	ADRES	SMODECHK		

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P0877 C-RELAY TESTER

0878	REF	14	LAST	239	11,7421	3	4500	0	CCHK	CAF	BIT15
0879	REF	57	LAST	239	11,7422	5	0723	1		TS	DSPTAB +11D
0880	REF	58	LAST	285	11,7423	5	0724	0		TS	DSPTAB +12D
0881	REF	59	LAST	285	11,7424	5	0725	1		TS	DSPTAB +13D
0882	REF	5	LAST	265	11,7425	3	4510	1		CAF	BIT7
0883					11,7426	2	0017	0		INHINT	
0884	REF	39	LAST	270	11,7427	0	2173	0		TC	WAITLIST
0885	REF	1			11,7430		23433	1		CADR	CCHKA
0886	REF	1			11,7431	3	7530	0		CAF	LCCHKB
0887	REF	6	LAST	228	11,7432	0	2127	1		TC	JOBSLEEP
0888	REF	2	LAST	285	11,7433	3	7530	0	CCHKA	CAF	LCCHKB
0889	REF	5	LAST	234	11,7434	0	2060	0		TC	JOBWAKE
0890	REF	30	LAST	271	11,7435	0	2256	1		TC	TASKOVER
0891	REF	44	LAST	284	11,7436	3	5503	1	CCHKB	CAF	TWO
0892	REF	270	LAST	278	11,7437	5	0115	1		TS	MPAC
0893	REF	2	LAST	148	11,7440	3	3232	1		CAF	TEN
0894	REF	271	LAST	285	11,7441	5	0116	1	CCHK0	TS	MPAC +1
0895	REF	287	LAST	282	11,7442	2	0000	0		INDEX	A
0896	REF	9	LAST	221	11,7443	3	4504	1		CAF	BIT11
0897	REF	15	LAST	285	11,7444	6	4500	0		AD	BIT15
0898	REF	272	LAST	285	11,7445	2	0115	0		INDEX	MPAC
0899	REF	60	LAST	285	11,7446	5	0723	1		TS	DSPTAB +11D
0900	REF	10	LAST	259	11,7447	3	4507	1		CAF	BIT8
0901					11,7450	2	0017	0		INHINT	
0902	REF	40	LAST	285	11,7451	0	2173	0		TC	WAITLIST
0903	REF	1			11,7452		23455	1		CADR	CCHK1
0904	REF	1			11,7453	3	7531	1		CAF	LCCHK2
0905	REF	7	LAST	285	11,7454	0	2127	1		TC	JOBSLEEP
0906	REF	2	LAST	285	11,7455	3	7531	1	CCHK1	CAF	LCCHK2
0907	REF	6	LAST	285	11,7456	0	2060	0		TC	JOBWAKE
0908	REF	31	LAST	285	11,7457	0	2256	1		TC	TASKOVER
0909	REF	12	LAST	234	11,7460	3	0007	0	CCHK2	XCH	IN3
0910	REF	13	LAST	285	11,7461	1	0007	1		CCS	IN3
0911	REF	1			11,7462	0	7525	1		TC	CCHKALM
0912	REF	2	LAST	285	11,7463	0	7525	1		TC	CCHKALM
0913					11,7464	0	7466	1		TC	+2
0914	REF	3	LAST	285	11,7465	0	7525	1		TC	CCHKALM
0915	REF	273	LAST	285	11,7466	1	0116	0		CCS	MPAC +1

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0916	REF	1		11,7467	0 7441 1		TC	CCHK0	
0917	REF	16	LAST 285	11,7470	3 4500 0		CAF	BIT15	TURN OFF LAST RELAY.
0918	REF	274	LAST 285	11,7471	2 0115 0		INDEX	MPAC	
0919	REF	61	LAST 285	11,7472	5 0723 1		TS	DSPTAB +11D	
0920	REF	275	LAST 286	11,7473	1 0115 0		CCS	MPAC	
0921	REF	2	LAST 286	11,7474	0 7437 0		TC	CCHK0 -2	
0922	REF	6	LAST 285	11,7475	3 4510 1		CAF	BIT7	
0923				11,7476	2 0017 0		INHINT		
0924	REF	41	LAST 285	11,7477	0 2173 0		TC	WAITLIST	
0925	REF	1		11,7500	23503 0		CADR	CCHKC	
0926	REF	1		11,7501	3 7533 0		CAF	LCCHKD	
0927	REF	8	LAST 285	11,7502	0 2127 1		TC	JOBSLEEP	
0928	REF	2	LAST 286	11,7503	3 7533 0	CCHKC	CAF	LCCHKD	
0929	REF	7	LAST 285	11,7504	0 2060 0		TC	JOBWAKE	
0930	REF	32	LAST 285	11,7505	0 2256 1		TC	TASKOVER	
0931	REF	14	LAST 285	11,7506	3 0007 0	CCHKD	XCH	IN3	
0932	REF	15	LAST 286	11,7507	1 0007 1		CCS	IN3	
0933				11,7510	0 7514 0		TC	+4	
0934				11,7511	0 7514 0		TC	+3	
0935	REF	4	LAST 285	11,7512	0 7525 1		TC	CCHKALM	
0936	REF	5	LAST 286	11,7513	0 7525 1		TC	CCHKALM	
0937	REF	9	LAST 257	11,7514	3 5362 0		CAF	SEVEN	
0938	REF	276	LAST 286	11,7515	5 0117 0		TS	MPAC +2	
0939	REF	1		11,7516	3 7532 1		CAF	CCHKNV	
0940	REF	24	LAST 278	11,7517	0 3100 0		TC	NVSUB	
0941	REF	21	LAST 262	11,7520	0 3315 0		TC	PRENVBSY	
0942	REF	14	LAST 278	11,7521	0 3362 0	TSTOUT	TC	FREEDSP	
0943	REF	7	LAST 264	11,7522	0 2362 1		TC	NEWMODE	REVERT TO MODE 00.
0944				11,7523	00000 1		OCT	0	
0945	REF	35	LAST 278	11,7524	0 2124 1		TC	ENDOFJOB	
0946	REF	15	LAST 265	11,7525	0 3007 0	CCHKALM	TC	ALARM	
0947				11,7526	01104 0		OCT	1104	
0948	REF	36	LAST 286	11,7527	0 2124 1		TC	ENDOFJOB	
0949	REF	1		11,7530	23436 1	LCCHKB	CADR	CCHKB	
0950	REF	1		11,7531	23460 1	LCCHK2	CADR	CCHK2	
0951				11,7532	00101 1	CCHKNV	OCT	00101	
0952	REF	1		11,7533	23506 0	LCCHKD	CADR	CCHKD	

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P0953 DSKY TESTER

0954	REF	3	LAST	285	11,7534	3	3232	1	DCHECK	CAF	TEN	
0955	REF	277	LAST	286	11,7535	5	0115	1	DC9	TS	MPAC	
0956	REF	278	LAST	287	11,7536	2	0115	0		INDEX	MPAC	
0957	REF	1			11,7537	3	7643	1		CAF	DSKYCODE	
0958	REF	279	LAST	287	11,7540	5	0116	1		TS	MPAC +1	
0959					11,7541	2	0017	0		INHINT		
0960					11,7542	4	0000	0		COM		
0961	REF	62	LAST	286	11,7543	5	0721	0		TS	DSPTAB +9D	
0962	REF	1			11,7544	4	3221	1		CS	MID5	
0963	REF	280	LAST	287	11,7545	7	0116	0		MASK	MPAC +1	
0964					11,7546	4	0000	0		COM		
0965	REF	63	LAST	287	11,7547	5	0717	0		TS	DSPTAB +7	
0966	REF	10	LAST	285	11,7550	4	4504	0		CS	BIT11	
0967	REF	281	LAST	287	11,7551	7	0116	0		MASK	MPAC +1	
0968					11,7552	4	0000	0		COM		
0969	REF	64	LAST	287	11,7553	5	0710	1		TS	DSPTAB	
0970	REF	65	LAST	287	11,7554	5	0711	0		TS	DSPTAB +1	
0971	REF	66	LAST	287	11,7555	5	0712	0		TS	DSPTAB +2	
0972	REF	67	LAST	287	11,7556	5	0713	1		TS	DSPTAB +3	
0973	REF	68	LAST	287	11,7557	5	0714	0		TS	DSPTAB +4	
0974	REF	69	LAST	287	11,7560	5	0715	1		TS	DSPTAB +5	
0975	REF	70	LAST	287	11,7561	5	0716	1		TS	DSPTAB +6	
0976	REF	71	LAST	287	11,7562	5	0720	1		TS	DSPTAB +8D	
0977	REF	72	LAST	287	11,7563	5	0722	0		TS	DSPTAB +10D	
0978	REF	1			11,7564	3	7656	0		CAF	DCNOUT	
0979	REF	5	LAST	172	11,7565	5	0707	1		TS	NOUT	
0980	REF	11	LAST	287	11,7566	3	4504	1	DCWAIT	CAF	BIT11	10.24 SEC WAIT
0981	REF	42	LAST	286	11,7567	0	2173	0		TC	WAITLIST	
0982	REF	1			11,7570		23573	1		CADR	DC10	
0983	REF	1			11,7571	3	7657	1		CAF	LDC11	
0984	REF	9	LAST	286	11,7572	0	2127	1		TC	JOBSLEEP	
0985	REF	2	LAST	287	11,7573	3	7657	1	DC10	CAF	LDC11	
0986	REF	8	LAST	286	11,7574	0	2060	0		TC	JOBWAKE	
0987	REF	33	LAST	286	11,7575	0	2256	1		TC	TASKOVER	
0988	REF	282	LAST	287	11,7576	1	0115	0	DC11	CCS	MPAC	
0989	REF	1			11,7577	0	7535	0		TC	DC9	
0990					11,7600	0	7602	1		TC	+2	
0991	REF	1			11,7601	0	7613	1		TC	DC+	
0992					11,7602	2	0017	0		INHINT		
0993	REF	6	LAST	228	11,7603	4	4373	0		CS	6K	- SIGNS.
0994	REF	73	LAST	287	11,7604	5	0710	1		TS	DSPTAB	
0995	REF	74	LAST	287	11,7605	5	0713	1		TS	DSPTAB +3	
0996	REF	75	LAST	287	11,7606	5	0715	1		TS	DSPTAB +5	
0997	REF	283	LAST	287	11,7607	5	0115	1		TS	MPAC	

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0998	REF	6	LAST	224	11,7610	3	4473	0	CAF	THREE		
0999	REF	6	LAST	287	11,7611	5	0707	1	TS	NOUT		
1000	REF	1			11,7612	0	7566	0	TC	DCWAIT		
1001					11,7613	2	0017	0		INHINT		
1002	REF	7	LAST	287	11,7614	4	4373	0	CS	6K		
1003	REF	76	LAST	287	11,7615	5	0711	0	TS	DSPTAB +1		
1004	REF	77	LAST	288	11,7616	5	0714	0	TS	DSPTAB +4		
1005	REF	78	LAST	288	11,7617	5	0716	1	TS	DSPTAB +6		
1006	REF	15	LAST	211	11,7620	4	4503	1	CS	BIT12		
1007	REF	79	LAST	288	11,7621	5	0710	1	TS	DSPTAB		
1008	REF	80	LAST	288	11,7622	5	0713	1	TS	DSPTAB +3		
1009	REF	81	LAST	288	11,7623	5	0715	1	TS	DSPTAB +5		
1010	REF	9	LAST	231	11,7624	3	4475	0	CAF	SIX		
1011	REF	7	LAST	288	11,7625	5	0707	1	TS	NOUT		
1012	REF	3	LAST	273	11,7626	3	3220	1	CAF	LOW5		
1013	REF	24	LAST	284	11,7627	5	0011	1	TS	OUT1	Turns on DSKY LAMPS.	
1014					11,7630	2	0016	1		RELINT		
1015	REF	6	LAST	222	11,7631	3	4506	0	CAF	BIT9		
1016	REF	284	LAST	287	11,7632	5	0115	1	TS	MPAC	KEEP GLIT ON FOR A WHILE.	
1017	REF	12	LAST	287	11,7633	3	4504	1	CAF	BIT11	LOOPS FOR ABOUT 40 MS.	
1018	REF	288	LAST	285	11,7634	1	0000	0	CCS	A		
1019					11,7635	0	7634	1	TC	-1		
1020	REF	26	LAST	284	11,7636	1	0215	0	CCS	NEWJOB		
1021	REF	3	LAST	284	11,7637	0	2101	0	TC	CHANG1		
1022	REF	285	LAST	288	11,7640	1	0115	0	CCS	MPAC		
1023	REF	1			11,7641	0	7632	1	TC	DC++		
1024	REF	1			11,7642	0	7521	0	TC	TSTOUT		
1025					11,7643	04000	0		DSKYCODE	DCT	04000	BLANKS
1026					11,7644	07265	1			DCT	07265	00
1027					11,7645	06143	1			DCT	06143	11
1028					11,7646	07471	1			DCT	07471	22
1029					11,7647	07573	1			DCT	07573	33
1030					11,7650	06757	1			DCT	06757	44
1031					11,7651	07736	1			DCT	07736	55
1032					11,7652	07634	1			DCT	07634	66
1033					11,7653	07163	1			DCT	07163	77
1034					11,7654	07675	1			DCT	07675	88
1035					11,7655	07777	1			DCT	07777	99
1036					11,7656	00013	0		DCNOUT	DEC	11	
1037	REF	1			11,7657	23576	1		LDC11	CADR	DC11	

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P1038 ENGINE-ON PROGRAM FOLLOWING A +XXX.XX SECOND DELAY OF LESS THAN 2 MINUTES, ENGINE WILL REMAIN ON FOR +XXX.XX

1040	REF	12	LAST	278	11,7660	0	3302	0	BROKYPRG	TC	GRABDSP
1041	REF	12	LAST	278	11,7661	0	3310	0		TC	PREGBSY
1042	REF	107	LAST	261	11,7662	3	4516	1		CAF	ONE
1043	REF	1			11,7663	5	1564	1		TS	CUSSANG
1044	REF	1			11,7664	3	7723	0		CAF	V21N24G
1045	REF	25	LAST	286	11,7665	0	3100	0		TC	NVSUB
1046	REF	22	LAST	286	11,7666	0	3315	0		TC	PRENVBSY
1047	REF	17	LAST	278	11,7667	0	3136	0		TC	ENDIDLE
1048	REF	37	LAST	286	11,7670	0	2124	1		TC	ENDOFJOB
1049					11,7671	0	7664	1		TC	-5
1050	REF	12	LAST	262	11,7672	3	0616	0		XCH	DSPTM1
1051	REF	23	LAST	139	11,7673	3	1460	1		XCH	LONGTIME
1052	REF	13	LAST	289	11,7674	3	0617	1		XCH	DSPTM1 +1
1053	REF	24	LAST	289	11,7675	3	1461	0		XCH	LONGTIME +1
1054	REF	1			11,7676	5	1563	0		TS	PLOW
1055	REF	2	LAST	289	11,7677	1	1564	0		CCS	CUSSANG
1056	REF	1			11,7700	0	7663	0		TC	BROKYPRG +3
1057	REF	2	LAST	289	11,7701	3	1563	0		XCH	PLOW
1058	REF	43	LAST	287	11,7702	0	2173	0		TC	WAITLIST
1059	REF	1			11,7703		23706	1		CADR	ENGNON
1060	REF	15	LAST	286	11,7704	0	3362	0		TC	FREEDSP
1061	REF	38	LAST	289	11,7705	0	2124	1		TC	ENDOFJOB
1062	REF	5	LAST	265	11,7706	4	4502	0	ENGNON	CS	BIT13
1063	REF	25	LAST	288	11,7707	7	0011	0		MASK	OUT1
1064	REF	6	LAST	289	11,7710	6	4502	1		AD	BIT13
1065	REF	26	LAST	289	11,7711	5	0011	1		TS	OUT1
1066	REF	1			11,7712	3	7724	1		CAF	ENGOFLOC
1067	REF	2	LAST	117	11,7713	5	1467	0		TS	CALLCADR
1068	REF	3	LAST	136	11,7714	0	5742	0		TC	IBNKCALL
1069	REF	2	LAST	136	11,7715		10552	1		CADR	LONGCALL
1070	REF	34	LAST	287	11,7716	0	2256	1		TC	TASKOVER
1071	REF	7	LAST	289	11,7717	4	4502	0	ENGNOFF	CS	BIT13
1072	REF	27	LAST	289	11,7720	7	0011	0		MASK	OUT1
1073	REF	28	LAST	289	11,7721	5	0011	1		TS	OUT1
1074	REF	35	LAST	289	11,7722	0	2256	1		TC	TASKOVER
1075					11,7723		02124	1	V21N24G	OCT	02124
1076	REF	1			11,7724		23717	1	ENGOFLOC	CADR	ENGNOFF

L 001 INTER-BANK COMMUNICATION

USER'S OWN PAGE NO. 1

R0001 THE FOLLOWING SUBROUTINES ARE INTENDED TO FACILITATE INTER-BANK COMMUNICATION. ROUTINES ARE PROVIDED
 R0003 FOR JUMPING TO A LOCATION IN ANOTHER BANK, CALLING A SUBROUTINE IN ANOTHER BANK, AND OBTAINING DATA FROM ANOTHER
 R0005 BANK. IN ADDITION, A ROUTINE IS PROVIDED FOR MAKING UP A RETURN-ADDRESS CADR FOR USE BY THE CALLED SUBROUTINE.

0007				5654			BANK	2		
0008	REF	85	LAST	228	5654	5 0062 0	BANKCALL	TS	ADDRWD	SUBROUTINE CALL WITH TRANSMISSION BOTH
0009	REF	183	LAST	284	5655	3 0001 0		XCH	Q	WAYS IN A. THE CADR OF THE CALLED
0010	REF	108	LAST	289	5656	6 4516 1		AD	ONE	ROUTINE SHOULD IMMEDIATELY FOLLOW THE
0011	REF	184	LAST	290	5657	5 0001 0		TS	Q	TC BANKCALL.
0012	REF	289	LAST	288	5660	2 0000 0		INDEX	A	
0013					5661	2 7777 0		CAF	0 -1	PICK UP CADR AND FALL INTO SWCALL.
0014	REF	7	LAST	228	5662	5 0071 1	SWCALL	TS	TEMQS	SWCALL IS ALOS USED TO CALL SUBROUTINES
0015	REF	37	LAST	159	5663	3 0015 0		XCH	BANKREG	IN OTHER BANKS, BUT THE CADR ARRIVES IN
0016	REF	5	LAST	228	5664	5 0072 1		TS	BANKTEM	A. DATA MAY BE TRANSMITTED BACK TO THE
0017	REF	185	LAST	290	5665	3 0001 0		XCH	Q	CALLING PROGRAM IN A, HOWEVER.
0018	REF	8	LAST	290	5666	3 0071 1		XCH	TEMQS	RETURN INFORMATION NOW COMPLETE.
0019	REF	7	LAST	84	5667	5 0114 0		TS	ESCAPE	
0020	REF	2	LAST	119	5670	7 2667 0		MASK	70K	PROVISION FOR CALLING A ROUTINE IN
0021	REF	290	LAST	290	5671	1 0000 0		CCS	A	FIXED-FIXED (OF QUESTIONABLE VALUE).
0022					5672	0 5674 1		TC	+2	SPECIAL TREATMENT REQUIRED IF NON-ZERO.
0023					5673	0 5676 0		TC	+3	INPUT CADR OK AS IS.
0024	REF	38	LAST	290	5674	4 0015 1		CS	BANKREG	FORM PROPER 12 BIT ADDRESS.
0025	REF	8	LAST	288	5675	6 4373 1		AD	6K	
0026	REF	8	LAST	290	5676	6 0114 0	+3	AD	ESCAPE	PROPER CADRS COME HERE WITH C(A) = 0.
0027	REF	86	LAST	290	5677	3 0062 0		XCH	ADDRWD	SO A CAN TRANSMIT WITH BANKCALL.
0028	REF	87	LAST	290	5700	2 0062 1		INDEX	ADDRWD	
0029					5701	0 0000 1		TC	0	SETTING Q TO SWRETURN.
0030	REF	6	LAST	290	5702	3 0072 1	SWRETURN	XCH	BANKTEM	RETURN TO CALLER, TRANSMITTING THROUGH A
0031	REF	39	LAST	290	5703	5 0015 0		TS	BANKREG	
0032	REF	7	LAST	290	5704	3 0072 1		XCH	BANKTEM	RESTORE A AS UPON ARRIVAL TO SWRETURN.
0033	REF	9	LAST	290	5705	0 0071 1		TC	TEMQS	RETURN.

L 001 INTER-BANK COMMUNICATION

USER'S OWN PAGE NO. 2

0034	REF	97	LAST	265	5706	3	5501	0	MAKECADR	CAF	ZERO	LEAVES RETURN-ADDRESS CADR (AS SET BY
0035	REF	10	LAST	290	5707	6	0071	1		AD	TEMQS	SWCALL OR BANKCALL) IN ADDRWD.
0036	REF	88	LAST	290	5710	5	0062	0		TS	ADDRWD	
0037	REF	1			5711	6	2165	1		AD	32K	SEE IF BANK INFORMATION NEEDED (USUAL).
0038	REF	51	LAST	270	5712	5	0034	0		TS	OVCTR	
0039	REF	186	LAST	290	5713	0	0001	0		TC	Q	ADDRWD SET OK IF NO OVERFLOW (IN FF).
0040	REF	52	LAST	291	5714	3	0034	0		XCH	OVCTR	CONTAINS LOW 10 BITS ONLY.
0041	REF	8	LAST	290	5715	6	0072	1		AD	BANKTEM	
0042	REF	89	LAST	291	5716	5	0062	0		TS	ADDRWD	RETURN CADR NOW COMPLETE.
0043	REF	187	LAST	291	5717	0	0001	0		TC	Q	
0044	REF	4	LAST	209			2165		32K	EQUALS	PRI032	
0045	REF	188	LAST	291	5720	3	0001	0	POSTJUMP	XCH	Q	ONE-WAY BANK TO BANK JUMP, WITH NO
0046	REF	291	LAST	290	5721	2	0000	0		INDEX	A	RETURN ADDRESS. THIS VERSION TRANSMITS
0047					5722	3	0000	1		CAF	0	THROUGH A IF DESIRED.
0048	REF	40	LAST	290	5723	5	0015	0	BANKJUMP	TS	BANKREG	SAME AS ABOVE ONLY ADDRESS ARRIVES IN A.
0049	REF	12	LAST	228	5724	7	4606	1		MASK	LOW10	BANKJUMP AND POSTJUMP MAY BE USED IN
0050	REF	189	LAST	291	5725	3	0001	0		XCH	Q	INTERRUPT OR UNDER EXEC, BUT BANKCALL
0051	REF	190	LAST	291	5726	2	0001	1		INDEX	Q	AND SWCALL MAY BE USED ONLY UNDER EXEC.
0052					5727	0	6000	1		TC	6000	
0053	REF	9	LAST	290	5730	5	0114	0	DATACALL	TS	ESCAPE	SUBROUTINE TO RETRIEVE DATA IN ANOTHER
0054	REF	41	LAST	291	5731	3	0015	0		XCH	BANKREG	BANK. THE CADR OF THE LOCATION OF INTER-
0055	REF	10	LAST	291	5732	3	0114	0		XCH	ESCAPE	EST ARRIVES IN A AND ITS CONTENTS ARE IN
0056	REF	13	LAST	291	5733	7	4606	1		MASK	LOW10	A ON EXIT. THIS MAY BE USED ONLY UNDER
0057	REF	292	LAST	291	5734	2	0000	0		INDEX	A	EXECUTIVE.
0058					5735	3	6000	1		CAF	6000	REQUESTED DATA NOW ACQUIRED.
0059	REF	11	LAST	291	5736	3	0114	0		XCH	ESCAPE	
0060	REF	42	LAST	291	5737	5	0015	0		TS	BANKREG	
0061	REF	12	LAST	291	5740	3	0114	0		XCH	ESCAPE	
0062	REF	191	LAST	291	5741	0	0001	0		TC	Q	

L 001 INTER-BANK COMMUNICATION

USER'S OWN PAGE NO. 3

P0063 THE FOLLOWING ROUTINES ARE INTERRUPT ANALOGS OF BANKCALL AND SWCALL. BANK-TO-BANK ONLY.

0065	REF	17	LAST	234	5742	5	0637	0	IBNKCALL	TS	RUPTREG1
0066	REF	192	LAST	291	5743	3	0001	0		XCH	Q
0067	REF	109	LAST	290	5744	6	4516	1		AD	ONE
0068	REF	193	LAST	292	5745	5	0001	0		TS	Q
0069	REF	293	LAST	291	5746	2	0000	0		INDEX	A
0070					5747	2	7777	0		CAF	0 -1
0071	REF	9	LAST	234	5750	5	0641	1	ISWCALL	TS	RUPTREG3
0072	REF	43	LAST	291	5751	3	0015	0		XCH	BANKREG
0073	REF	22	LAST	234	5752	5	0640	0		TS	RUPTREG2
0074	REF	194	LAST	292	5753	3	0001	0		XCH	Q
0075	REF	10	LAST	292	5754	3	0641	1		XCH	RUPTREG3
0076	REF	14	LAST	291	5755	7	4606	1		MASK	LOW10
0077	REF	18	LAST	292	5756	3	0637	0		XCH	RUPTREG1
0078	REF	19	LAST	292	5757	2	0637	1		INDEX	RUPTREG1
0079					5760	0	6000	1		TC	6000
0080	REF	23	LAST	292	5761	3	0640	0	ISWRETRN	XCH	RUPTREG2
0081	REF	44	LAST	292	5762	5	0015	0		TS	BANKREG
0082	REF	24	LAST	292	5763	3	0640	0		XCH	RUPTREG2
0083	REF	11	LAST	292	5764	0	0641	1		TC	RUPTREG3

L ALARM AND DISPLAY PROCEDURES

USER'S OWN PAGE NO. 1

R0001 THE FOLLOWING SUBROUTINE MAY BE CALLED TO DISPLAY A NON-ABORTIVE ALARM CONDITION. IT MAY BE CALLED
 R0003 EITHER IN INTERRUPT OR UNDER EXECUTIVE CONTROL.

R0004 CALLING SEQUENCE IS AS FOLLOWS:

R0005 TC ALARM
 R0006 OCT AAANN
 R0007 ALARM NO. NN IN GENERAL AREA AAA.
 (RETURNS HERE)

0008					3007		BANK	1	
0009					3007	2 0017 0	ALARM	INHINT	
0010	REF	195	LAST	292	3010	3 0001 0		XCH	0
0011	REF	25	LAST	209	3011	5 0577 1		TS	ITEMP1
0012	REF	2	LAST	140	3012	1 1763 0		CCS	FAILREG
A0013									SEE IF ONE FAILURE HAS OCCURRED SINCE THE LAST ERROR RESET.
0014	REF	1			3013	0 3021 1		TC	MULTFAIL
0015	REF	1			3014	0 3024 1		TC	NEWALARM
0016	REF	26	LAST	293	3015	3 0577 1	MULTEXIT	XCH	ITEMP1
									FIRST SINCE RESET. FREE ITEMP1 BEFORE RELINT.
0017					3016	2 0016 1	ENDALARM	RELINT	
0018	REF	294	LAST	292	3017	2 0000 0		INDEX	A
0019					3020	0 0001 0		TC	1
									RETURN TO CALLER.
0020	REF	5	LAST	265	3021	6 4664 1	MULTFAIL	AD	CSQ
0021	REF	3	LAST	293	3022	5 1763 1		TS	FAILREG
0022	REF	1			3023	0 3015 0		TC	MULTEXIT
									BIT15 = 1 INDICATES MULTIPLE FAILURES. CSQ = BIT15 + BIT1.
0023	REF	27	LAST	293	3024	3 0577 1	NEWALARM	XCH	ITEMP1
0024	REF	4	LAST	293	3025	5 1763 1		TS	FAILREG
									SAVE RETURN ADDRESS FOR CALL TO NOVAC.
0025	REF	1			3026	0 3036 1		TC	PROGLARM
									TURN ON THE PROGRAM ALARM LIGHT.
0026	REF	2	LAST	144	3027	3 2172 1		CAF	PRI037
0027	REF	11	LAST	277	3030	0 2052 1		TC	NOVAC
0028	REF	2	LAST	144	3031	23725 0		CADR	DOALARM
									CALL (SEPARATE) JOB FOR DISPLAY.
0029	REF	5	LAST	293	3032	2 1763 0		INDEX	FAILREG
0030					3033	3 0000 1		CAF	0
0031	REF	6	LAST	293	3034	3 1763 1		XCH	FAILREG
0032	REF	1			3035	0 3016 0	NEWALM2	TC	ENDALARM
									(RETURN ADDRESS AT THIS POINT). SET FAILREG AND GET BACK RETURN ADDRESS.

L ALARM AND DISPLAY PROCEDURES

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P0033 JOB WHICH CALLS NVSUB FOR ALARM DISPLAY.

0034					11,7725				BANK	11	
0035	REF	13	LAST	289	11,7725	0	3302	0	DOALARM	TC	GRABDSP
0036	REF	13	LAST	289	11,7726	0	3310	0		TC	PREGBSY
0037	REF	1			11,7727	3	3043	0		CAF	FAILDISP
0038	REF	26	LAST	289	11,7730	0	3100	0		TC	NVSUB
0039	REF	23	LAST	289	11,7731	0	3315	0		TC	PRENVBSY
0040	REF	16	LAST	289	11,7732	0	3362	0		TC	FREEDSP
0041	REF	39	LAST	289	11,7733	0	2124	1		TC	ENDOFJOB

0043	REF	1				3036			SETLOC	NEWALM2	+1
------	-----	---	--	--	--	------	--	--	--------	---------	----

0044	REF	110	LAST	292	3036	4	4516	0	PROGLARM	CS	ONE	TURNS ON PROGRAM FAIL LIGHT ON THE PANEL. CALLED ONLY BY ALARM AND ABORT.
0045	REF	29	LAST	289	3037	7	0011	0		MASK	OUT1	
0046	REF	111	LAST	294	3040	6	4516	1		AD	ONE	
0047	REF	30	LAST	294	3041	5	0011	1		TS	OUT1	
0048	REF	196	LAST	293	3042	0	0001	0		TC	Q	
0049					3043		00531	0	FAILDISP	OCT	00531	

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0054					3044	2	0017	0	ABORT	INHINT		MAY BE CALLED IN INTERRUPT OR UNDER EXEC
0055	REF	197	LAST	294	3045	2	0001	1		INDEX	Q	PICK UP FAILURE CODE.
0056					3046	3	0000	1		CAF	O	
0057	REF	28	LAST	293	3047	5	0577	1		TS	ITEMP1	

0058	REF	7 LAST 293	3050	1 1763 0	CCS	FAILREG	SEE IF THIS IS A MULTIPLE FAILURE.
0059	REF	1	3051	0 3054 0	TC	SETMULTF	SET BIT 15 TO INDICATE YES.
0060	REF	1	3052	0 3056 1	TC	NEWABORT	FIRST FAILURE.

0061	REF	1		3053	0	3053	1	WHIMPER	TC	WHIMPER	NOT WITH A BANG...
------	-----	---	--	------	---	------	---	---------	----	---------	--------------------

0062	REF	6 LAST 293	3054	6 4664 1	SETMULTF AD	CSQ	RESTORE AND SET BIT15
0063			3055	0 3060 1	TC	+3	

```
0064 REF 2 LAST 293 3056 0 3036 1 NEWABORT TC PROGLARM FIRST FAILURE - TURN ON ALARM LIGHT.
```

0065	REF	29	LAST	295	3057	3	0577	1		XCH	ITEMP1	
0066	REF	8	LAST	295	3060	5	1763	1	+3	TS	FAILREG	
0067	REF	2	LAST	295	3061	0	3053	1		TC	WHIMPER	UNIVERSAL ABORT LOCATION.

0068	REF	198	LAST	295	3062	3	0001	0	CCSHOLE	XCH	Q
0069	REF	4	LAST	265	3063	5	1764	0		TS	SFAIL
0070	REF	9	LAST	204	3064	0	3044	1		TC	ABORT
0071					3065		01103	1		OCT	1103

RO072 MISSION PROGRAM DETECTED FAILURES (ERROR RETURNS TO IMUSTALL, ETC.)

0074	REF 199 LAST 295	3066 3 0001 0	CURTAINS XCH	Q	PROGRAM DETECTED FLUSH.
0075	REF 13 LAST 264	3067 0 5720 1	TC	POSTJUMP	
0076	REF 1	3070 10777 1	CADR	THATSALL	FRESH START AND PROGRAM ALARM.

0077 3071 ENDFAILF EQUALS

L ORBITAL INTEGRATION PROGRAM

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0001				23,6000		BANK	23
R000101	*** SCALING FACTORS AND ARGUMENTS ***						
R000102							
000103			0002	DEL	=		2
000104			0002	DEL+E	=		2
000105			0004	2DEL	=		4
000106			0004	2DEL+E	=		4
000107			0000	E	=		0
000108			0020	RSCALE	=		16D
000109			0006	VSCALE	=		6
00011			0033	TSCALE	=		27D
000111			0014	2VSCALE	=		12D
000112			0100	4RSCALE	=		64D
000113			0026	R+VSCALE	=		22D
R0002	FBR3 SETS UP A TIMESTEP CALL TO KEPLER.						
0003			23,6000	56775 1	FBR3	TSRT	1
0004			23,6001	46542 0		ROUND	DAD
0005	REF	1	23,6002	01265 1			H
0006	REF	1	23,6003	00012 1			TSCALE -18D
0007	REF	1	23,6004	01145 0			TC
0008	REF	1	23,6005	33261 1		STORE	TAU
0009			23,6006	64774 1		DMP	2
0010			23,6007	56631 0		TSRT	ROUND
0011			23,6010	70776 0		DAD	
0012	REF	1	23,6011	07431 0			EARTH TAB
0013	REF	1	23,6012	01263 1			DT/2
0014			23,6013	00015 0			12D
0015	REF	1	23,6014	01147 1			TET
0016	REF	2 LAST 296	23,6015	33147 0		STORE	TET
0017			23,6016	76776 0		ITC	0
0018	REF	1	23,6017	06027 1			KEPLER
0019			23,6020	76776 0		ITC	0
0020	REF	1	23,6021	06066 1			KEPLER2
0021			23,6022	76776 0	GETKTIME	ITC	0
0022	REF	1	23,6023	06145 1			KTIMEN+1
0023			23,6024	76776 0		ITC	0
0024	REF	1	23,6025	06225 1			KEPLER3

L ORBITAL INTEGRATION PROGRAM

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P0025 THIS ORBITAL KEPLER SUBROUTINE FINDS THE POSITION AND VELOCITY OF THE VEHICLE AFTER TIME FOUND IN
 R0027 GIVENT SINCE RECTIFICATION TO POSITION RRECT AND VELOCITY VRECT . THE RESULTING POSITION AND VELOCITY ARE
 R0029 LEFT IN FOUNDR AND FOUNDV , RESPECTIVELY.

0030			23,6026	73575 1	KEPLER	LXA,1	1	UNIT OF RECTIFICATION POSITION TO 0
0031			23,6027	67553 0		SXA,1	UNIT	
0032	REF	11 LAST 104	23,6030	00070 0			FIXLOC	
0033	REF	16 LAST 109	23,6031	00124 0			PUSHLOC	
0034	REF	7 LAST 158	23,6032	01101 0			RRECT	
0035			23,6033	63776 1		TSLT	0	AND LENGTH OF ORIGINAL IN 6.
0036			23,6034	00037 0			30D	
0037			23,6035	00002 0			1	
0038			23,6036	67173 0		VSQ	3	A4 TO REGISTER 8.
0039			23,6037	46522 0		ROUND	DMP	
0040			23,6040	63732 1		TSLT	DSU	
0041			23,6041	63631 0		TSLT	ROUND	
0042	REF	7 LAST 158	23,6042	01107 0			VRECT	
0043			23,6043	00007 0			6	LENGTH OF POSITION AT RECTIFICATION.
00435	REF	1	23,6044	00004 0			2DEL+E -1	
0044	REF	1	23,6045	07445 0			DP1/2	
0045			23,6046	00002 0			1	
0046			23,6047	47573 0		NOLOD	3	ALPHA TO REGISTER 10.
0047			23,6050	56633 1		TSRT	COMP	
0048			23,6051	70672 0		DAD	TSRT	
00485			23,6052	62776 0		DDV		
0049			23,6053	00002 0			1	
0050	REF	2 LAST 297	23,6054	07445 0			DP1/2	
00505	REF	2 LAST 297	23,6055	00004 0			2DEL+E -1	
0051			23,6056	00007 0			6	
0052			23,6057	42775 1		DOT	1	A1 TO REGISTER 12.
0053			23,6060	63631 0		TSLT	ROUND	
0054	REF	8 LAST 297	23,6061	01101 0			RRECT	
0055	REF	8 LAST 297	23,6062	01107 0			VRECT	
00555	REF	1	23,6063	00003 1			DEL+E	
0056			23,6064	40576 1		ITCQ	0	

L ORBITAL INTEGRATION PROGRAM

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0057			23,6065	73175 0	KEPLER2	UNIT	1	
0058			23,6066	74412 0		AXT,2	DOT	
0059	REF	1	23,6067	01131 0			RCV	
0060			23,6070	00013 0			10D	SET MAXIMUM ITERATION COUNT TO 10.
0061	REF	1	23,6071	01137 0			VCV	IR/2 • VC IN 14
0062			23,6072	63776 1		TSLT	0	
0063			23,6073	00037 0			30D	
0064			23,6074	00002 0			1	
0065	REF	1	23,6075	33255 0		STORE	ALPHAM	RC IN ALPHAM.
0066			23,6076	56775 1		TSRT	1	
0067			23,6077	46512 0		ROUND	DDV	
0068	REF	2 LAST 296	23,6100	01263 1			DT/2	
0069	REF	2 LAST 296	23,6101	00012 1			TSCALE -18D	
0070	REF	2 LAST 298	23,6102	01255 1			ALPHAM	Q IN 16.
0071			23,6103	56772 0		TSRT	4	
00715			23,6104	62732 0		DDV	DSU	
0072			23,6105	55666 1		DMPR	DMPR	
0073			23,6106	55661 0		DMPR	AST,2	
0074			23,6107	63776 1		TSLT		
0075	REF	3 LAST 297	23,6110	07445 0			DP1/2	
00755	REF	3 LAST 297	23,6111	00004 0			2DEL+E -1	
0076	REF	3 LAST 298	23,6112	01255 1			ALPHAM	
0077			23,6113	00013 0			10D	1/4RC - ALPHA
0078			23,6114	00021 1			16D	Q ()
0079			23,6115	00021 1			16D	Q Q ()
0080	REF	1	23,6116	06306 1			DP1/3	
0081			23,6117	00002 0			1	
0082	REF	1	23,6120	00011 1			2DEL +4	
0083			23,6121	55775 1		DMPR	1	
0084			23,6122	63776 1		TSLT		
0085			23,6123	00017 1			14D	
0086			23,6124	00021 1			16D	
0087	REF	1	23,6125	00006 1			DEL +3	
0088			23,6126	47572 1		NOLOD	4	
0089			23,6127	65666 1		BDSU	DMPR	
0090			23,6130	65732 1		BDSU	DSU	
0091			23,6131	64716 0		DMP	TSLT	
0092			23,6132	46542 0		ROJND	DAD	
0093	REF	4 LAST 298	23,6133	07445 0			DP1/2	20
0094			23,6134	77777 0			-	
0095	REF	5 LAST 298	23,6135	07445 0			DP1/2	18
0096			23,6136	77777 0			-	16
0097			23,6137	77777 0			-	
0098			23,6140	00002 0			1	
0099	REF	1	23,6141	01151 0			XKEP	

L ORBITAL INTEGRATION PROGRAM

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0100	REF	2 LAST 298	23,6142	33151 1	STORE	XKEP
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0101			23,6143	40576 1	ITCQ	0
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L ORBITAL INTEGRATION PROGRAM

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P0102 ITERATING EQUATIONS - GIVEN X IN MPAC AND 14D, FIND TIME OF FLIGHT.

0103			23,6144	47571 1	KTIMEN+1	NOLOD 5	FORM ALPHA X-SQUARED AND CALL S AND C.
0104			23,6145	51031 1		DSQ ROUND	
0105			23,6146	64716 0		DMP TSLT	
0106			23,6147	46555 0		ROUND LXA,1	AND SET PD INDICATOR TO 16 AS WELL.
0107			23,6150	63535 1		INCR,1 SXA,1	
0108			23,6151	45572 0		ITA ITC	
0109			23,6152	00013 0		10D	ALPHA
0110	REF	2 LAST 298	23,6153	00005 1		2DEL	
0111	REF	12 LAST 297	23,6154	00070 0		FIXLOC	
0112			23,6155	00021 1		16D	
0113	REF	17 LAST 297	23,6156	00124 0		PUSHLOC	
0114	REF	1	23,6157	01273 0		GMODE	
0115	REF	1	23,6160	06312 1		S(X)C(X)	
0116			23,6161	47572 1		NOLOD 4	S RETURNS IN MPAC, C ON TOP OF PDL.
0117			23,6162	64716 0		DMP TSLT	
0118			23,6163	64716 0		DMP TSLT	
0119			23,6164	64716 0		DMP TSLT	
0120			23,6165	46576 1		ROUND	
0121	REF	3 LAST 299	23,6166	01151 0		XKEP	
0122			23,6167	00005 1		4	
0123	REF	4 LAST 300	23,6170	01151 0		XKEP	
0124	REF	1	23,6171	00002 0		E +1	
0125	REF	5 LAST 300	23,6172	01151 0		XKEP	
0126			23,6173	00002 0		1	
0127			23,6174	32030 0		STORE 23D	A3.
0128			23,6175	47575 0		NOLOD 1	
0129			23,6176	55776 1		DMPR	
0130			23,6177	00011 1		8D	
0131			23,6200	64774 1		DMP 2	
0132			23,6201	63722 0		TSLT DMP	
0133			23,6202	63631 0		TSLT ROUND	
0134	REF	6 LAST 300	23,6203	01151 0		XKEP	VALUE OF C.
0135			23,6204	00021 1		16D	
0136			23,6205	00006 1		5	
0137	REF	7 LAST 300	23,6206	01151 0		XKEP	
0138	REF	2 LAST 300	23,6207	00003 1		E +2	
0139			23,6210	32026 1		STORE 21D	A2.
0140			23,6211	47574 1		NOLOD 2	
0141			23,6212	64672 0		DMP TSRT	
0142			23,6213	46542 0		ROUND DAD	
0143			23,6214	00015 0		12D	A1.
0144			23,6215	00003 1		2	

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0145			23,6216	55775 1	DMPR	1	
0146			23,6217	70776 0	DAD		
0147			23,6220	00007 0		6	
0148	REF	8 LAST 300	23,6221	01151 0		XKEP	COMPUTED TIME TO PD+18.
0149			23,6222	44576 0	ITCI	0	
0150	REF	2 LAST 300	23,6223	01273 0		GMODE	
0151			23,6224	47575 0	KEPLER3	NOLOD	1
0152			23,6225	65776 1		BDSU	COMPARE COMPUTED TIME WITH GIVEN TIME.
0153	REF	1	23,6226	01261 0		GIVENT	
0154			23,6227	32021 0	STORE	16D	DIFFERENCE TO REGISTER 16.
0155			23,6230	77576 0	EXIT	0	
0156	REF	3 LAST 69	23,6231	0 4000 0	DUMPDUMP	TC	INTPRET
							FOR DUMP ONLY *****
0157			23,6232	47573 0	NOLOD	3	
0158			23,6233	65132 1	ABS	DSU	
0159			23,6234	73641 0	BMN	TIX,2	
0160			23,6235	76776 0	ITC		
0161	REF	1	23,6236	06300 1		KEPSILON	SEE IF WITHIN EPSILON OF GIVEN TIME.
0162	REF	1	23,6237	06407 1		GETRANDV	IF SO, GET R AND V AND EXIT.
0163	REF	1	23,6240	06243 1		GETNEWX	
0164	REF	2 LAST 301	23,6241	06407 1		GETRANDV	
0165			23,6242	64772 1	GETNEWX	DMP	4
0166			23,6243	63631 0		TSLT	ROUND
0167			23,6244	65722 0		BDSU	DMP
0168			23,6245	53514 1		AXC,1	TSLT*
01685			23,6246	46576 1		ROUND	
0169			23,6247	00013 0		10D	ALPHA
0170			23,6250	00030 1		23D	A3
0171	REF	4 LAST 298	23,6251	00005 1		2DEL+E	
0172	REF	9 LAST 301	23,6252	01151 0		XKEP	
0173			23,6253	00015 0		12D	A1
0174	REF	3 LAST 300	23,6254	00004 0		E -3	
01745			23,6255	00001 0		0,1	
0175			23,6256	32023 1	STORE	18D	
0176			23,6257	64774 1	DMP	2	
0177			23,6260	63631 0	TSLT	ROUND	
0178			23,6261	70742 1	DAD	DAD	
0179			23,6262	00026 0		21D	A2
0180			23,6263	00011 1		8D	A4
0181			23,6264	00002 0		1	
0182			23,6265	77777 0		-	
0183			23,6266	00007 0		6	R0
0184			23,6267	62775 0	DDV	1	

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0185			23,6270	70776 0	DAD	
0186			23,6271	00021 1		16D
0187			23,6272	00023 0		18D
0188	REF	10 LAST 301	23,6273	01151 0		XKEP
0189	REF	11 LAST 302	23,6274	33151 1	STORE	XKEP
0190			23,6275	76776 0	ITC	0
0191	REF	1	23,6276	06023 0		GETKTIME

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R0192 CONSTANTS.

0193		23,6277	00000 1	KEPSILON	OCT	00000
0194		23,6300	00002 0		OCT	00002
0195		23,6301	14000 1	THREE/8	2DEC	.375
C0195		23,6302	00000 1			
0196		23,6303	10000 0	DP1/4	2DEC	.25
C0196		23,6304	00000 1			
0197		23,6305	12525 0	DP1/3	2DEC	.333333333
C0197		23,6306	12525 0			
0198	REF	1	23,6303	DQUARTER	EQUALS	DP1/4
0199		23,6307	02000 0	POS1/16	2DEC	.0625
C0199		23,6310	00000 1			
0200	REF	2 LAST 303	23,6303	POS1/4	EQUALS	DP1/4
0201	REF	1	23,6301	3/8	EQUALS	THREE/8

L ORBITAL INTEGRATION PROGRAM

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P0202 SUBROUTINE FOR COMPUTING THE UNIVERSAL CONIC FUNCTIONS S(X) AND C(X). THE ACTUAL OUTPUT OF THIS ROUTINE
 R0204 CONSISTS OF SCALED VERSIONS DEFINED AS FOLLOWS:

R0205 $S(X) = S(64X)$ $C(X) = C(64X)/4$
 R0206 S S

R0207 IT IS ASSUMED THAT THE INPUT ARRIVES IN MPAC,MPAC+1, AND THAT IT LIES BETWEEN -30/64 AND 40/64. UPON
 R0209 EXIT, S(X) WILL BE LEFT IN MPAC,MPAC+1 AND C(X) ON TOP OF THE PUSHDOWN LIST.

0211			23,6311	47576 0	S(X)C(X)	NOLDD	0	SAVE ARGUMENT
0212	REF	1	23,6312	32033 0		STORE	XSTOREX	
0213			23,6313	47574 1		NOLDD	2	
0214			23,6314	76443 0		RTB	DSQ	COMPUTE $A^2(X)$
0215			23,6315	46576 1		ROUND		
0216	REF	1	23,6316	06351 0			A(X)	
0217	REF	1	23,6317	32031 1		STORE	ASQ	
0218			23,6320	47573 0		NOLDD	3	
0219			23,6321	64716 0		DMP	TSLT	$C(X) = A^2(.25 - 2XA^2)$ TO PUSHDOWN LIST
0220			23,6322	46526 1		ROUND	BDSU	S
0221			23,6323	55776 1		DMPR		
0222	REF	2 LAST 304	23,6324	00033 1			XSTOREX	
0223			23,6325	00002 0			1	
0224	REF	1	23,6326	06304 0			POS1/4	
0225	REF	2 LAST 304	23,6327	00031 0			ASQ	
0226			23,6330	56775 1		TSRT	1	A^2
0227			23,6331	46576 1		ROUND		$A^2/4$ TO PUSHDOWN LIST
0228	REF	3 LAST 304	23,6332	00031 0			ASQ	
0229			23,6333	00003 1			2	
0230			23,6334	45174 1		DMOVE	2	B^2
0231			23,6335	76443 0		RTB	DSQ	B^2 TO PUSHDOWN LIST
0232			23,6336	46576 1		ROUND		
0233	REF	3 LAST 304	23,6337	00033 1			XSTOREX	
0234	REF	1	23,6340	06370 0			B(X)	
0235			23,6341	55774 0		DMPR	2	
0236			23,6342	65666 1		BDSU	DMPR	LEAVE $S(X) = B^2(.0625 - AX) + A^2/4$ IN MPAC
0237			23,6343	70601 1		DAD	ITCQ	S
0238	REF	4 LAST 304	23,6344	00033 1			XSTOREX	
0239	REF	4 LAST 304	23,6345	00031 0			ASQ	
0240	REF	1	23,6346	06310 0			POS1/16	
0241				0032	XSTOREX	=	26D	
0242				0030	ASQ	=	24D	
0243			23,6347	70707 0		OCT	70707	THIS HAS TO BE NEGATIVE TO TERMINATE EQN

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0244	REF	3 LAST 84	23,6350	0 5554 0	A(X)	TC	POLY	A AND B POLYNOMIALS WHOSE COEFFICI-		
0245			23,6351	00012 1		DEC	10	ENTS WERE OBTAINED WITH THE *AUTO-		
0246			23,6352	26501 1		2DEC	7.071067810 E-1	CURVEFIT* PROGRAM		
C0246			23,6353	07463 1						
0247			23,6354	60724 0		2DEC	-4.714045180 E-1			
C0247			23,6355	60210 1						
0248			23,6356	03010 0		2DEC	9.42808914 E-2			
C0248			23,6357	26256 1						
0249			23,6360	77554 0		2DEC	-8.9791893 E-3			
C0249			23,6361	74242 0						
0250			23,6362	00010 0		2DEC	4.989987 E-4			
C0250			23,6363	05475 1						
0251			23,6364	77777 0		2DEC	-1.79357 E-5			
C0251			23,6365	66460 0						
0252	REF	35 LAST 105	23,6366	0 4024 0		TC	DANZIG	RE-ENTER INTERPRETER		
0253	REF	4 LAST 305	23,6367	0 5554 0	B(X)	TC	POLY			
0254			23,6370	00012 1		DEC	10			
0255			23,6371	32101 0		2DEC	8.164965793 E-1			
C0255			23,6372	17270 1						
0256			23,6373	65431 1		2DEC	-3.265986572 E-1			
C0256			23,6374	40174 1						
0257			23,6375	01710 0		2DEC	5.90988980 E-2			
C0257			23,6376	10660 0						
0258			23,6377	77676 0		2DEC	-4.0085592 E-3			
C0258			23,6400	52270 0						
0259			23,6401	00004 0		2DEC	2.781528 E-4			
C0259			23,6402	21652 0						
0260			23,6403	77777 0		2DEC	-1.25610 E-5			
C0260			23,6404	71323 0						
0261	REF	36 LAST 305	23,6405	0 4024 0		TC	DANZIG	RETURN AS BEFORE		

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P0262 ROUTINE FOR OBTAINING R AND V, NOW THAT THE PROPER X HAS BEEN FOUND.

0263			23,6406	73574 0	GETRANDV	LXA,1 2	
0264			23,6407	63535 1		INCR,1 SxA,1	
0265			23,6410	47166 0		COMP VXSC	
0266	REF	13 LAST 300	23,6411	00070 0		FIXLOC	
0267			23,6412	00032 0		25D	
0268	REF	18 LAST 300	23,6413	00124 0		PUSHLOC	
0269			23,6414	00026 0		21D	A2 FROM LAST ITERATION.
0270			23,6415	00001 0		0	UNIT OF GIVEN POSITION VECTOR.
0271			23,6416	66774 0	DSJ	2	
0272			23,6417	63766 0	TSLT	VXSC	
0273			23,6420	50622 1	VAD	VSLT	
0274			23,6421	00023 0		18D	LAST VALUE OF T.
0275			23,6422	00030 1		23D	LAST VALUE OF A3.
0276	REF	2 LAST 298	23,6423	00004 0		DEL +1	
0277	REF	9 LAST 297	23,6424	01107 0		VRECT	
0278			23,6425	77777 0		-	
0279			23,6426	00002 0		1	
0280			23,6427	47575 0	NOLOD	1	ADDITION MUST BE DONE IN THIS ORDER.
0281			23,6430	50642 1	VAD	VAD	
0282	REF	9 LAST 297	23,6431	01101 0		RRECT	
0283	REF	1	23,6432	33131 1	STORE	FOUNDR	RESULTING CONIC POSITION.
0284			23,6433	47575 0	NOLOD	1	LENGTH OF ABOVE TO PD+16.
0285			23,6434	71116 1	ABVAL	TSLT	
0286			23,6435	00002 0		1	
0287			23,6436	32021 0	STORE	16D	
0288			23,6437	64772 1	DMP	4	
0289			23,6440	63631 0	TSLT	ROUND	
0290			23,6441	66672 1	DSJ	TSRT	
0291			23,6442	62766 1	DDV	VXSC	
02915			23,6443	44776 1	VSLT		
0292			23,6444	00013 0		10D	ALPHA.
0293			23,6445	00030 1		23D	A3
0294	REF	5 LAST 301	23,6446	00005 1		2DEL+E	
0295	REF	12 LAST 302	23,6447	01151 0		XKEP	
02955	REF	2 LAST 297	23,6450	00003 1		DEL+E	
0296			23,6451	00021 1		16D	LENGTH OF FOUND POSITION.
0297			23,6452	00001 0		0	UNIT OF RECTIFICATION POSITION.
0298			23,6453	00004 0		3	
0299			23,6454	56773 1	TSRT	3	
0300			23,6455	66712 0	DSJ	DDV	
0301			23,6456	75642 0	VXSC	VAD	
0302			23,6457	44776 1	VSLT		

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0303		23,6460	00021 1	16D
0304		23,6461	00002 0	1
0305		23,6462	00026 0	21D
0306		23,6463	00021 1	16D
0307	REF 10 LAST 306	23,6464	01107 0	VRECT
0308		23,6465	77777 0	-
0309		23,6466	00002 0	1
0310	REF 1	23,6467	33137 1	STORE FOUNDV
0311		23,6470	44576 0	ITCI 0
0312	REF 1	23,6471	01272 1	HBRANCH

THIS COMPLETES THE CALCULATION.

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P0313 THE POSTRUE ROUTINES SET UP THE BETA VECTOR AND OTHER INITIAL CONDITIONS FOR THE NEXT ACCOMP.

0315			23,6472	73573 1	POSTRUE	LXA,1	3	
0316			23,6473	67426 0		SXA,1	VSRT	
0317			23,6474	50751 1		VAD	LXA,2	
0318			23,6475	73535 0		LXA,1	SXA,1	
0319	REF	1	23,6476	01312 0			SCALDELT	SETS UP SCALE A.
0320	REF	1	23,6477	01307 1			SCALEA	
0321	REF	1	23,6500	01153 1			ALPHAV	
0322	REF	1	23,6501	00015 0			RSCALE -4	
0323	REF	2 LAST 298	23,6502	01131 0			RCV	POSITION OUTPUT OF KEPLER.
0324	REF	1	23,6503	01306 0			DIFEQCNT	
0325	REF	1	23,6504	01313 1			SCALER	
0326	REF	1	23,6505	01310 1			SCALEB	SET UP SCALE B AND G MODE.
0327	REF	1	23,6506	33161 1		STORE	BETAV	
0328			23,6507	67776 0		BHIZ	0	
0329	REF	1	23,6510	01304 1			WMATFLAG	TEST W MATRIX FLAG.
0330	REF	1	23,6511	06516 0			ACCOMP	
0331			23,6512	75176 0		VMOVE	0	
0332	REF	2 LAST 308	23,6513	01161 0			BETAV	
0333	REF	1	23,6514	36422 0		STORE	VECTAB,2	SAVE R/PV IN VECTAB FOR W MATRIX UPDATE.

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P0334 AGC ROUTINE TO COMPUTE ACCELERATION COMPONENTS.

0335			23,6515	73176 0	ACCOMP	UNIT	0	UNITIZE ALPHA VECTOR
0336	REF	2 LAST 308	23,6516	01153 1			ALPHAV	
0337	REF	3 LAST 309	23,6517	33153 0		STORE	ALPHAV	
0338			23,6520	45176 0		DMOVE	0	SAVE LENGTH OF ALPHA VECTOR
0339			23,6521	00037 0			30D	
0340	REF	4 LAST 298	23,6522	33255 0		STORE	ALPHAM	
0341			23,6523	72776 1		STZ	0	
0342	REF	13 LAST 136	23,6524	00123 1			OVFIND	
0343			23,6525	45773 0	ACCOMP2	VSRT	3	
0344			23,6526	67155 1		VSQ	LXA,1	NORMED B ² TO PD.
0345			23,6527	67476 0		SXA,1	TSLC	
0346			23,6530	46576 1		ROUND		
0347	REF	3 LAST 308	23,6531	01161 0			BETAV	
0348			23,6532	00002 0			1	
0349	REF	14 LAST 306	23,6533	00070 0			FIXLOC	
0350	REF	19 LAST 306	23,6534	00124 0			PUSHLOC	
0351	REF	1	23,6535	00051 0			S1	
0352			23,6536	57775 0		TSLC	1	NORMALIZE (LESS ONE) LENGTH OF ALPHA
0353			23,6537	56776 1		TSRT		SAVING NORM. SCALE FACTOR IN X1
0354	REF	5 LAST 309	23,6540	01255 1			ALPHAM	
0355	REF	2 LAST 43	23,6541	00047 1			X1	
0356			23,6542	00002 0			1	C(PDL+2) = ALMOST NORMED ALPHAM
0357			23,6543	73176 0		UNIT	0	SAME PROCEDURE FOR BETA VECTOR
0358	REF	4 LAST 309	23,6544	01161 0			BETAV	
0359	REF	5 LAST 309	23,6545	33161 1		STORE	BETAV	
0360			23,6546	45176 0		DMOVE	0	
0361			23,6547	00037 0			30D	
0362	REF	1	23,6550	33257 1		STORE	BETAM	
0363			23,6551	47574 1		NOLOD	2	
0364			23,6552	57706 1		TSLC	BDDV	FORM NORMALIZED QUOTIENT ALPHAM/BETAM
0365			23,6553	56631 0		TSRT	ROUND	
0366	REF	1	23,6554	00050 1			X2	
0367			23,6555	77777 0			-	
0368			23,6556	00002 0			1	C(PDL +2) = ALMOST NORMALIZED RHO.

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0369			23,6557	70573 1	LXC,2	3	$C(X2) = -SCALE(RHO) + 1.$
0370			23,6560	60501 0	XAD,2	XAD,2	$= -S(B) - N(B) + S(A) + N(A) + 1$
0371			23,6561	56511 1	X5J,2	INCR,2	
0372			23,6562	47470 1	NOLOD	TSRT*	
0373	REF	2 LAST 309	23,6563	00050 1		X2	
0374	REF	2 LAST 308	23,6564	01307 1		SCALEA	
0375	REF	3 LAST 309	23,6565	00047 1		X1	
0376	REF	2 LAST 308	23,6566	01310 1		SCALEB	
0377			23,6567	00003 1		2	
0378			23,6570	00002 0		0,2	
0379			23,6571	47575 0	NOLOD	1	$RHO/4 \text{ PD } +6$
0380			23,6572	56631 0	TSRT	ROUND	
0381			23,6573	00003 1		2	
0382			23,6574	42774 0	DOT	2	
0383			23,6575	63631 0	TSRT	ROUND	$(RHO/4) - 2 \text{ (ALPHAV/2, BETAV/2)}$
0384			23,6576	65776 1	BDSU		$\text{TO PDL } +6$
0385	REF	4 LAST 309	23,6577	01153 1		ALPHAV	
0386	REF	6 LAST 309	23,6600	01161 0		BETAV	
0387			23,6601	00002 0		1	
0388			23,6602	47575 0	NOLOD	1	$Q/4 = RHO(C(PDL +4)) \text{ TO PD } +8D$
0389			23,6603	55776 1	DMPR		
0390			23,6604	00005 1		4	
0391			23,6605	47575 0	NOLOD	1	$(Q + 1)/4 \text{ TO PD } +10D.$
0392			23,6606	70776 0	DAD		
0393	REF	1	23,6607	06304 0		DQUARTER	
0394			23,6610	47575 0	NOLOD	1	$((Q + 1)/4)^{3/2} \text{ TO PD } +12D.$
0395			23,6611	53066 1	SQRT	DMPR	
0396			23,6612	00013 0		10D	
0397			23,6613	47575 0	NOLOD	1	$(1/4) + 2((Q + 1)/4)^{3/2} \text{ TO PD } +14D.$
0398			23,6614	63742 0	TSRT	DAD	
0399			23,6615	00002 0		1	
0400	REF	2 LAST 310	23,6616	06304 0		DQUARTER	

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0401			23,6617	70773 0	DAD	3	-
0402			23,6620	55716 1	DMPR	TSLT	(G/2)(C(PD +4))B/2 TO PD +16D.
0403			23,6621	70712 1	DAD	DDV	
0404			23,6622	55766 0	DMPR	VXSC	
0405			23,6623	00013 0		10D	
0406	REF	6 LAST 298	23,6624	07445 0		DP1/2	
0407			23,6625	00011 1		8D	
0408			23,6626	00002 0		1	
0409	REF	2 LAST 303	23,6627	06302 0		THREE/8	
0410			23,6630	00017 1		14D	
0411			23,6631	00007 0		6	
0412	REF	7 LAST 310	23,6632	01161 0		BETAV	
0413			23,6633	45775 0	VSRT	1	A12 + C(PD +16D) TO PD +16D.
0414			23,6634	50776 1	VAD		
0415	REF	5 LAST 310	23,6635	01153 1		ALPHAV	
0416			23,6636	00004 0		3	
0417			23,6637	64771 1	DMP	5	-
0418			23,6640	57631 1	TSLC	ROUND	GAMMA TO PD +22D, -SCALE(GAMMA)-1 TO
0419			23,6641	61745 0	BDDV	LXC,1	X1.
0420			23,6642	61505 0	XAD,1	XAD,1	
0421			23,6643	61505 0	XAD,1	XAD,1	
0422			23,6644	47166 0	COMP	VXSC	
0423			23,6645	00001 0		0	
0424			23,6646	00015 0		12D	
0425	REF	1	23,6647	00052 0		S2	
0426			23,6650	00003 1		2	
0427	REF	3 LAST 310	23,6651	00050 1		X2	C(X2) = SCALE (RHO).
0428	REF	2 LAST 311	23,6652	00052 0		S2	C(S2) = N((B.B/4)(...))3/2)
0429	REF	2 LAST 309	23,6653	00051 0		S1	C(S1) = N(B.B/4)
0430	REF	3 LAST 310	23,6654	01310 1		SCALEB	
0431	REF	4 LAST 311	23,6655	01310 1		SCALEB	
0432			23,6656	00021 1		16D	RESULT OF PRECEDING EQUATION.
0433			23,6657	47575 0	NOLOD	1	-SCALE(GAMMA)-1 IS LEFT IN X1.
0434			23,6660	44376 0	VSLT*		ADJUST GAMMA TO SCALE OF -32.
0435			23,6661	00077 1		31D,1	
0436	REF	1	23,6662	33203 0	STORE	FV	
0437			23,6663	75176 0	VMOVE	0	
0438	REF	8 LAST 311	23,6664	01161 0		BETAV	
0439	REF	6 LAST 311	23,6665	33153 0	STORE	ALPHAV	BETA VECTOR INTO ALPHA FOR NEXT ACCOMP.
0440			23,6666	45176 0	DMOVE	0	
0441	REF	2 LAST 309	23,6667	01257 0		BETAM	
0442	REF	6 LAST 309	23,6670	33255 0	STORE	ALPHAM	

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P0443 THE OBLATE ROUTINE COMPUTES THE ACCELERATION DUE THE THE EARTHS OBLATENESS. IT USES THE UNIT OF THE
 R0445 VEHICLE POSITION VECTOR FOUND IN ALPHAV AND THE DISTANCE TO THE CENTER OF THE EARTH IN ALPHAM. THIS IS ADDED TO
 R0447 THE SUM OF THE DISTURBING ACCELERATIONS IN FV AND THE PROPER DIFEQ STAGE IS CALLED VIA X1.

0449			23,6671	73575 1	OBLATE	LXA,1	1	
0450			23,6672	67516 1		SXA,1	TSLT	
0451	REF	15 LAST 309	23,6673	00070 0			FIXLOC	SET PUSH-DOWN COUNTER TO ZERO.
0452	REF	20 LAST 309	23,6674	00124 0			PUSHLOC	
0453	REF	7 LAST 311	23,6675	01255 1			ALPHAM	
0454			23,6676	00002 0			1	
0455	REF	8 LAST 312	23,6677	33255 0		STORE	ALPHAM	
0456			23,6700	55776 1		DMPR	0	P2 ¹ /8 TO REGISTER 0.
0457	REF	7 LAST 311	23,6701	01157 0			ALPHAV +4	Z COMPONENT OF POSITION IS COS PHI.
0458	REF	1	23,6702	07435 1			3/4	
0459			23,6703	51174 1		DSQ	2	P3 ¹ /4 TO REGISTER 2.
0460			23,6704	63666 1		TSLT	DMPR	
0461			23,6705	66776 1		DSJ		
0462	REF	8 LAST 312	23,6706	01157 0			ALPHAV +4	
0463			23,6707	00004 0			3	
0464	REF	1	23,6710	07433 1			15/16	
0465	REF	1	23,6711	06302 0			3/8	
0466			23,6712	47574 1		NOLOD	2	P4 ¹ /16 TO REGISTER 4.
0467			23,6713	55666 1		DMPR	DMPR	
0468			23,6714	63776 1		TSLT		
0469	REF	9 LAST 312	23,6715	01157 0			ALPHAV +4	
0470	REF	1	23,6716	07211 1			7/12	
0471			23,6717	00002 0			1	TO STACK.
0472			23,6720	55775 1		DMPR	1	FINISH P4 ¹ /16.
0473			23,6721	65776 1		BDSU		
0474	REF	1	23,6722	00001 0			P2 ¹ /8	
0475	REF	1	23,6723	07231 0			2/3	
0476			23,6724	47575 0		NOLOD	1	BEGIN COMPUTING P5 ¹ /128.
0477			23,6725	55666 1		DMPR	DMPR	
0478	REF	10 LAST 312	23,6726	01157 0			ALPHAV +4	
0479	REF	1	23,6727	07213 0			9/16	

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0480			23,6730	55770	1	DMPR	6	FINISH P5:/128 AND TERM USING UNIT POSITION VECTOR AT ALPHA.
0481			23,6731	65722	0	BDSU	DMP	
0482			23,6732	63672	1	TSLT	TSRT	
04822			23,6733	62742	1	DDV	DAD	
0483			23,6734	55672	1	DMPR	TSRT	
0484			23,6735	62742	1	DDV	DAD	
0485			23,6736	75776	0	VXSC		
0486	REF	1	23,6737	00003	1		P3*/4	
0487	REF	1	23,6740	07215	0		5/128	
0488			23,6741	77777	0		-	
0489	REF	1	23,6742	07443	0		J4REQ/J3	
0490			23,6743	00003	1		2	
04902	REF	2 LAST 308	23,6744	00003	1		RSCALE -14D	
0491	REF	9 LAST 312	23,6745	01255	1		ALPHAM	
0492	REF	1	23,6746	00005	1		P4*/16	
0493	REF	1	23,6747	07441	1		2J3RE/J2	
04932	REF	3 LAST 313	23,6750	00003	1		RSCALE -14D	
0494	REF	10 LAST 313	23,6751	01255	1		ALPHAM	
0495	REF	2 LAST 313	23,6752	00003	1		P3*/4	
0496	REF	11 LAST 312	23,6753	01153	1		ALPHAV	
0497	REF	12 LAST 313	23,6754	33153	0	STORE	ALPHAV	
0498			23,6755	64774	1	DMP	2	COMPUTE TERM USING IZ.
0499			23,6756	63672	1	TSLT	TSRT	
0500			23,6757	62742	1	DDV	DAD	
0501	REF	2 LAST 313	23,6760	07443	0		J4REQ/J3	
0502			23,6761	77777	0		-	
0503			23,6762	00002	0		1	
05032	REF	4 LAST 313	23,6763	00003	1		RSCALE -14D	
0504	REF	11 LAST 313	23,6764	01255	1		ALPHAM	

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0505			23,6765	56774 0	TSRT	2	
0506			23,6766	55712 0	DMPR	DDV	
0507			23,6767	70726 0	DAD	BDSU	
0508	REF	2 LAST 313	23,6770	07441 1		2J3RE/J2	
0509	REF	5 LAST 313	23,6771	00006 1		RSCALE -11D	
0510			23,6772	77777 0		-	
0511	REF	12 LAST 313	23,6773	01255 1		ALPHAM	
0512			23,6774	77777 0		-	
0513	REF	13 LAST 313	23,6775	01157 0		ALPHAV +4	
0514	REF	14 LAST 314	23,6776	33157 1	STORE	ALPHAV +4	
0515			23,6777	51172 1	DSQ	4	
0516			23,7000	51076 1	DSQ	TSLC	
0517			23,7001	61766 1	BDDV	VXSC	
0518			23,7002	63420 1	INCR,1	VSLT*	SHIFTS LEFT ON+, RIGHT ON -.
0519			23,7003	50776 1	VAD		
0520	REF	13 LAST 314	23,7004	01255 1		ALPHAM	
0521	REF	4 LAST 310	23,7005	00047 1		X1	
0522	REF	1	23,7006	07437 0		J2REQSQ	
0523	REF	15 LAST 314	23,7007	01153 1		ALPHAV	
0524	REF	1	23,7010	00015 0		4RSCALE -52D	
0525			23,7011	00001 0		0,1	
0526	REF	2 LAST 311	23,7012	01203 1		FV	
0527	REF	3 LAST 314	23,7013	33203 0	STORE	FV	

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P052701 THE DRAG ROUTINE IS AN INSERTION TO THE OBLATE ROUTINE. IT USES
 R052702 THE VEHICLE POSITION VECTOR FOUND IN RCV, THE DISTANCE TO THE CENTER OF
 R052703 THE EARTH IN ALPHAM, AND THE VEHICLE VELOCITY VECTOR IN VCV.

R052704 IT APPROXIMATES THE U.S. STD ATMOSPHERE 1962 (OVER THE RANGE OF
 R052705 100 TO 300 KM ABOVE SEA LEVEL) WITH AN EQUATION OF THE FORM

R052706
$$\text{RHO} = \text{BASERHO} / ((1 + C1 X + C2 X^2 + C3 X^3 + C4 X^4))$$

 R052707

R052708 IT ASSUMES THE VEHICLE MASS TO BE THAT EXPECTED AFTER THE
 R052709 FIFTH SPS BURN.

05271		23,7014	56774 0	DENSITY	TSRT	2	IF THE ALTITUDE IS GREATER THAN THE CEILING ALTITUDE, DENCEIL (300 KM), SKIP THE DRAG CALCULATIONS AND GO TO NBRANCH.
052711		23,7015	66616 0		DSU	BPL	
052712		23,7016	76776 0		ITC		
052713	REF 1	23,7017	07475 0			DENCEIL	
052714	REF 6 LAST 314	23,7020	00003 1			RSCALE -14D	
052715	REF 14 LAST 314	23,7021	01255 1			ALPHAM	
052716	REF 1	23,7022	07025 1			DENSITY1	
052717	REF 1	23,7023	07104 0			NBRANCH	
052718		23,7024	56774 0	DENSITY1	TSRT	2	NORMALIZE ALTITUDE FOR AIR DENSITY FUNCTION SO THAT IT RANGES FROM 0 TO 1 OVER THE ALTITUDES OF 100 KM TO 300 KM RELATIVE TO THE REFERENCE SPHERE AND STORE IN DENALT.
052719		23,7025	65716 1		BDSU	TSLT	
05272		23,7026	62716 0		DDV	TSLT	
052721	REF 1	23,7027	07447 1			DENBASE	
052722	REF 7 LAST 315	23,7030	00003 1			RSCALE -14D	
052723	REF 15 LAST 315	23,7031	01255 1			ALPHAM	
052724		23,7032	00007 0			6	
052725	REF 1	23,7033	07451 0			DENFACT	
052726	REF 8 LAST 315	23,7034	00003 1			RSCALE -14D	
052727	REF 1	23,7035	32033 0		STORE	DENALT	
052728		23,7036	47567 0	DRAG1	NOLOD	7	CALCULATE SCALAR PART OF DRAG, I.E., ((RHO)(AREA)(DRAG COEFF))/MASS.
052729		23,7037	64742 1		DMP	DAD	
05273		23,7040	64742 1		DMP	DAD	LEAVE IN PDL AS D. P. NUMBER
052732		23,7041	64742 1		DMP	DAD	
052734		23,7042	64742 1		DMP	DAD	
052736		23,7043	63643 0		TSLT	DSQ	
052738		23,7044	51116 0		DSQ	TSLT	
05274		23,7045	61776 0		BDDV		
052742	REF 1	23,7046	07453 1			DEN4	
052744	REF 1	23,7047	07455 1			DEN3	
052746	REF 2 LAST 315	23,7050	00033 1			DENALT	
052748	REF 1	23,7051	07457 0			DEN2	
05275	REF 3 LAST 315	23,7052	00033 1			DENALT	
052752	REF 1	23,7053	07461 0			DEN1	
052754	REF 4 LAST 315	23,7054	00033 1			DENALT	
052756	REF 1	23,7055	07463 1			DENO	
052758		23,7056	00002 0			1	

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05276			23,7057	00003 1		2	
052762	REF	1	23,7060	07465 1		PACD/M	
052764			23,7061	41774 0	DRAG2	2	
052766			23,7062	75420 0	VXV	VSJT*	
052768			23,7063	74776 1	AXT,1		
05277	REF	1	23,7064	07467 0	VSJ		
052772	REF	3 LAST 308	23,7065	01131 0		OMEGA	
052774			23,7066	00030 1		RCV	
052776	REF	1	23,7067	00055 1		23D	
052778	REF	2 LAST 298	23,7070	01137 0		R+VSCALE,1	
05278			23,7071	47573 0		VCV	
052782			23,7072	71166 0	NOLOD	3	
052784			23,7073	75765 1	ABVAL	VXSC	
052786			23,7074	44242 0	VXSC	AXT,1	
052788			23,7075	77777 0	VSJT*	VAD	
05279			23,7076	77777 0		-	(-1/2) (ABVAL (-V)) (V)
052792			23,7077	00002 0		-	
052793	REF	1	23,7100	00001 0		1	(-1/2) (RHO A CD/M) (ABVAL (-V)) (V)
052794	REF	4 LAST 314	23,7101	01203 1		2VSCALE -12D,1	
052796	REF	5 LAST 316	23,7102	33203 0		FV	
0528			23,7103	73575 1	STORE	FV	SUM OF PERTURB ACCELERATIONS
0529			23,7104	76376 1	NBRANCH	LXA,1	
0530	REF	2 LAST 308	23,7105	01306 0	ITC*	1	
0531	REF	1	23,7106	16405 1		DIFEQCNT	
						DIFEQ,1	

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P0532 BEGIN INTEGRATION STEP WITH RECTIFICATION TEST.

0533			23,7107	71174 0	TIMESTEP	ABVAL	2	RECTIFICATION REQUIRED IF THE LENGTH OF
0534			23,7110	66756 0		DSJ	BMN	DELTA IS GREATER THAN .5 (8 KM).
0535			23,7111	76776 0		ITC		
0536	REF	1	23,7112	01115 0			YV	
0537	REF	3 LAST 303	23,7113	06304 0			DP1/4	
0538	REF	1	23,7114	07117 1			INTGRATE	
0539	REF	1	23,7115	07144 1			RECTIFY	CALL RECTIFICATION SUBROUTINE.
0540			23,7116	75573 1	INTGRATE	AXT,1	3	INITIALIZE INDEXES AND SWITCHES.
0541			23,7117	67565 0		SXA,1	AXT,1	
0542			23,7120	67415 0		SXA,1	TEST	
0543			23,7121	42576 0		SWITCH		
0544	REF	1	23,7122	06001 0			FBR3	
0545	REF	1	23,7123	01271 1			FBRANCH	EXIT FROM DIFEQCOM
0546	REF	1	23,7124	06473 1			POSTRUE	
0547	REF	2 LAST 307	23,7125	01272 1			HBRANCH	EXIT FROM KEPLER.
0548	REF	1	23,7126	00002 0			JSWITCH	0 FOR STATE VECTOR, 1 FOR W MATRIX.
0549			23,7127	07132 0			+2	TURN IT OFF HERE.
0550	REF	2 LAST 317	23,7130	00002 0			JSWITCH	

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0551				23,7131	75176 0	DIFEQ0	VMOVE	0	POSITION DEVIATION INTO ALPHA.
0552	REF	2 LAST 317		23,7132	01115 0			YV	
0553	REF	16 LAST 314		23,7133	33153 0		STORE	ALPHAV	
0554				23,7134	45176 0		DMOVE	0	START H AT 0.
0555	REF	1		23,7135	07227 1			DPZERO	
0556	REF	2 LAST 296		23,7136	33265 0		STORE	H	GOES 0(DELT/2)DELT.
0557				23,7137	47576 0		NOLDD	0	ZERO DIFEQCNT AND REGISTER FOLLOWING.
0558	REF	3 LAST 316		23,7140	33306 1		STORE	DIFEQCNT	GOES 0(-12D)(-24D).
0559				23,7141	44576 0		ITCI	0	BEGIN AT ADDRESS IN HBRANCH.
0560	REF	3 LAST 317		23,7142	01272 1			HBRANCH	

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P0561 THE RECTIFY SUBROUTINE IS CALLED BY THE INTEGRATION PROGRAM (AND OCCAISONALLY BY THE MEASUREMENT
R0563 INCORPORATION ROUTINES) TO ESTABLISH A NEW CONIC.

0564			23,7143	45775 0	RECTIFY	VSRT	1	RECTIFY - FORM TOTAL POSITION AND VEL.
0565			23,7144	50776 1		VAD		ADJUST SCALE DIFFERENCE (ASSUMED)
0566	REF	1	23,7145	01115 0			TDELTA	
0567	REF	9 LAST 315	23,7146	00015 0			RSCALE -4	
0568	REF	4 LAST 316	23,7147	01131 0			RCV	
0569	REF	10 LAST 306	23,7150	33101 1	STORE		RRECT	
0570			23,7151	47576 0	NOLOD	0		SET UP CONIC 'ANSWER' FOR TIMESTEP.
0571	REF	5 LAST 319	23,7152	33131 1	STORE		RCV	
0572			23,7153	75574 0	AXT,1	2		
0573			23,7154	75020 1	VMOVE	VSLT*		
05735			23,7155	50776 1	VAD			
0574	REF	1	23,7156	00011 1			VSCALE -14D	
0575	REF	3 LAST 23	23,7157	01123 0			TNUV	
05755			23,7160	00001 0			0,1	
0576	REF	3 LAST 316	23,7161	01137 0			VCV	
0577	REF	11 LAST 307	23,7162	33107 1	STORE		VRECT	
0578			23,7163	47576 0	NOLOD	0		
0579	REF	4 LAST 319	23,7164	33137 1	STORE		VCV	
0580			23,7165	75575 1	AXT,1	1		ZERO DELTA, NU, AND TIME SINCE RECTIFI-
0581			23,7166	55423 1	AST,1	DMOVE		
0582			23,7167	00015 0		12D		
0583			23,7170	00003 1		2		
0584	REF	2 LAST 318	23,7171	07227 1			DPZERO	
0585	REF	2 LAST 296	23,7172	33145 1	STORE		TC	
0586			23,7173	47576 0	NOLOD	0		
0587	REF	13 LAST 306	23,7174	33151 1	STORE		XKEP	ZERO X.
0588			23,7175	47576 0	ZEROLOOP	NOLOD	0	INDEXES CAUSE LOOP TO ZERO 6 CONSECUTIVE
0589	REF	3 LAST 318	23,7176	36261 1	STORE		YV +12D,1	DP NUMBERS (DELTA AND NU ARE ADJACENT).
0590			23,7177	51575 1	TIX,1	1		LOOP OR START INTEGRATION STEP IF DONE.
0591			23,7200	40576 1	ITCQ			
0592	REF	1	23,7201	07176 0			ZEROLOOP	

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P0593 THE THREE DIFEQ ROUTINES - DIFEQ+0, DIFEQ+12, AND DIFEQ+24 - ARE ENTERED TO PROCESS THE CONTRIBUTIONS
 R0595 AT THE BEGINNING, MIDDLE, AND END OF THE TIME STEP, RESPECTIVELY. THE UPDATING IS DONE BY THE NYSTROM METHOD.

0597			23,7202	45776 0	DIFEQ+0	VSRT	0	
0598	REF	6 LAST 316	23,7203	01203 1			FV	
0599			23,7204	00004 0			3	
0600	REF	1	23,7205	33167 1		STORE	PHIV	
0601			23,7206	76776 0		ITC	0	
0602	REF	1	23,7207	07354 1			DIFEQCOM	
0603			23,7210	22525 0	7/12	2DEC	.5833333333	ENTRIES MUST BE 12 WORDS APART SO FILL
C0603			23,7211	12525 0				
0604			23,7212	22000 1	9/16	2DEC	9 B -4	HOLES WITH CONSTANTS
C0604			23,7213	00000 1				
0605			23,7214	01200 1	5/128	2DEC	5 B -7	
C0605			23,7215	00000 1				
0606			23,7216	45775 0	DIFEQ+12	VSRT	1	
0607			23,7217	50776 1		VAD		
0608	REF	7 LAST 320	23,7220	01203 1			FV	
0609			23,7221	00002 0			1	
0610	REF	2 LAST 320	23,7222	01167 0			PHIV	
0611	REF	1	23,7223	33175 1		STORE	PSIV	
0612			23,7224	76776 0		ITC	0	
0613	REF	2 LAST 320	23,7225	07346 1			DIFEQCOM -6	
0614			23,7226	00000 1	DPZERO	2DEC	0.0	
C0614			23,7227	00000 1				
0615			23,7230	25252 0	DP2/3	2DEC	.6666666667	
C0615			23,7231	25253 1				
0616			23,7232	75773 0	DIFEQ+24	VXSC	3	DO FINAL CALCULATION FOR Y AND Z.
0617			23,7233	75622 0		VXSC	VSLT	
0618			23,7234	50766 0		VAD	VXSC	
0619			23,7235	50776 1		VAD		
0620	REF	3 LAST 320	23,7236	01167 0			PHIV	
0621	REF	3 LAST 318	23,7237	01265 1			H	
0622	REF	1	23,7240	07231 0			DP2/3	
0623			23,7241	00002 0			1	
0624	REF	1	23,7242	01123 0			ZV	
0625	REF	4 LAST 320	23,7243	01265 1			H	
0626	REF	4 LAST 319	23,7244	01115 0			YV	
0627	REF	5 LAST 320	23,7245	33115 1		STORE	YV	

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0628			23,7246	45772 1	VSRT	4	
0629			23,7247	50766 0	VAD	VXSC	
0630			23,7250	75622 0	VXSC	VSLT	
0631			23,7251	50615 0	VAD	TEST	SEE IF THIS IS STATE VECTOR OR W COLUMN.
0632			23,7252	75576 1	AXT,1		
0633	REF	8 LAST 320	23,7253	01203 1		FV	
0634			23,7254	00004 0		3	
0635	REF	2 LAST 320	23,7255	01175 0		PSIV	
0636	REF	5 LAST 320	23,7256	01265 1		H	
0637	REF	2 LAST 320	23,7257	07231 0		DP2/3	
0638			23,7260	00002 0		1	
0639	REF	2 LAST 320	23,7261	01123 0		ZV	
0640	REF	3 LAST 317	23,7262	00002 0		JSWITCH	
0641	REF	1	23,7263	07314 0		ENDSTATE	
0642			23,7264	00001 0		0	
0643	REF	1	23,7265	37564 1	STORE	W +72D,2	VELOCITY COLUMN VECTOR.
0644			23,7266	75176 0	VMOVE	0	
0645	REF	6 LAST 320	23,7267	01115 0		YV	
0646	REF	2 LAST 321	23,7270	37454 0	STORE	W +36D,2	POSITION COLUMN VECTOR.
0647			23,7271	50576 0	TIX,2	0	
0648	REF	1	23,7272	07304 1		NEXTCOL	
0649			23,7273	75176 0	VMOVE	0	
0650	REF	2 LAST 22	23,7274	01002 1		DELTAV	
0651	REF	2 LAST 319	23,7275	33115 1	STORE	TDELTAV	
0652			23,7276	75176 0	VMOVE	0	
0653	REF	2 LAST 22	23,7277	01010 1		NUV	
0654	REF	4 LAST 319	23,7300	33123 1	STORE	TNUV	
0655			23,7301	44576 0	ITCI	0	
0656	REF	1	23,7302	01305 0		STEPEXIT	
0657			23,7303	74176 1	NEXTCOL	VMOVE* 0	SET UP NEXT COLUMNS OF W MATRIX.
0658	REF	3 LAST 321	23,7304	03454 1		W +36D,2	
0659	REF	7 LAST 321	23,7305	33115 1	STORE	YV	
0660			23,7306	74176 1	VMOVE*	0	
0661	REF	4 LAST 321	23,7307	03564 0		W +72D,2	
0662	REF	3 LAST 321	23,7310	33123 1	STORE	ZV	
0663			23,7311	76776 0	ITC	0	
0664	REF	1	23,7312	07132 0		DIFEQ0	
0665			23,7313	47576 0	ENDSTATE	NOLOD	0
0666	REF	5 LAST 321	23,7314	33123 1	STORE	TNUV	

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0667			23,7315	56775 1	TSRT	1	UPDATE TIME SINCE RECTIFICATION.
0668			23,7316	46542 0	ROUND	DAD	
0669	REF	6 LAST 321	23,7317	01265 1		H	
0670	REF	3 LAST 298	23,7320	00012 1		TSCALE -18D	
0671	REF	3 LAST 319	23,7321	01145 0		TC	
0672	REF	4 LAST 322	23,7322	33145 1	STORE	TC	
0673			23,7323	67776 0	BHIZ	0	
0674	REF	2 LAST 308	23,7324	01304 1		WMATFLAG	
0675	REF	2 LAST 321	23,7325	07302 1		NEXTCOL -2	
0676			23,7326	76776 0	ITC	0	
0677	REF	1	23,7327	07331 1		SETWINT	FOR NOW
0678			23,7330	74572 1	SETWINT	AXT,2 4	SET UP W MATRIX EXTRAPOLATION ROUTINES.
0679			23,7331	54565 0		AST,2 AXT,1	PROGRAM DESCRIPTION IS AT DOW..
0680			23,7332	67535 0		SXA,1 SXA,1	
0681			23,7333	42565 1	SWITCH	AXT,1	
0682			23,7334	76776 0	ITC		
0683			23,7335	00045 0		36D	
0684			23,7336	00007 0		6	
0685	REF	1	23,7337	07377 0		DOW..	
0686	REF	2 LAST 317	23,7340	01271 1		FBRANCH	
0687	REF	4 LAST 318	23,7341	01272 1		HBRANCH	
0688	REF	4 LAST 321	23,7342	00002 0		JSWITCH	
0689			23,7343	00001 0		0	
0690	REF	3 LAST 322	23,7344	07304 1		NEXTCOL	

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P0691 COMES HERE TO FINISH FIRST TWO DIFEQ COMPUTATIONS.

0692			23,7345	45775 0	-6	VSRT	1	ENTERS HERE FROM DIFEQ+12 MIDPOINT COMPUTATION.
0693			23,7346	50776 1		VAD		
0694	REF	9 LAST 321	23,7347	01203 1			FV	
0695			23,7350	00003 1			2	
0696	REF	4 LAST 320	23,7351	01167 0			PHIV	
0697	REF	5 LAST 323	23,7352	33167 1		STORE	PHIV	
0698			23,7353	70775 0	DIFEQCOM	DAD	1	INCREMENT H AND DIFEQCNT.
0699			23,7354	63535 1		INCR,1	SXA,1	
0700	REF	3 LAST 298	23,7355	01263 1			DT/2	
0701	REF	7 LAST 322	23,7356	01265 1			H	
0702			23,7357	77764 1	-		12D	
0703	REF	4 LAST 318	23,7360	01306 0			DIFEQCNT	DIFEQCNT SET FOR NEXT ENTRY.
0704	REF	8 LAST 323	23,7361	33265 0		STORE	H	
0705			23,7362	75774 1		VXSC	2	
0706			23,7363	45642 0		VSRT	VAD	
0707			23,7364	75642 0		VXSC	VAD	
0708	REF	10 LAST 323	23,7365	01203 1			FV	
0709	REF	9 LAST 323	23,7366	01265 1			H	
0710			23,7367	00002 0			1	
0711	REF	4 LAST 321	23,7370	01123 0			ZV	
0712	REF	10 LAST 323	23,7371	01265 1			H	
0713	REF	8 LAST 321	23,7372	01115 0			YV	
0714	REF	17 LAST 318	23,7373	33153 0		STORE	ALPHAV	
0715			23,7374	44576 0		ITCI	0	EXIT VIA FBRANCH.
0716	REF	3 LAST 322	23,7375	01271 1			FBRANCH	
0717	REF	1		23,7202	DIFEQ	EQUALS	DIFEQ+0	

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P0718 ORBITAL ROUTINE FOR EXTRAPOLATING THE W MATRIX. IT COMPUTES THE
 R0719 SECOND DERIVATIVE OF EACH COLUMN POSITION VECTOR OF THE MATRIX AND CALLS
 R0720 THE NYSTOM INTEGRATION ROUTINES TO SOLVE THE DIFFERENTIAL EQUATIONS. THE
 R0721 PROGRAM USES A TABLE OF VEHICLE POSITION VECTORS COMPUTED DURING THE
 R0722 INTEGRATION OF THE VEHICLES POSITION AND VELOCITY.

0723			23,7376	45776 0	DOW..	VSRT	0	
0724	REF	18 LAST 323	23,7377	01153 1			ALPHAV	
0725			23,7400	00005 1			4	
0726			23,7401	72174 0		UNIT*	2	X1 REFERENCES THE TABLE OF POSITION
0727			23,7402	40766 1		VPROJ	VXSC	VECTORS AND CALLS THE CORRECT DIFEQ PROG
0728			23,7403	74776 1		VSU		
0729	REF	2 LAST 308	23,7404	02421 1			VECTAB,1	
0730	REF	19 LAST 324	23,7405	01153 1			ALPHAV	
0731	REF	2 LAST 312	23,7406	07435 1			3/4	
0732			23,7407	64772 1		DMP	4	CUBE OF LENGTH OF POSITION VECTOR
0733			23,7410	57631 1		TSLC	ROUND	DIVIDES VECTOR IN PUSH-DOWN LIST TO
0734			23,7411	61766 1		BDDV	VXSC	FORM FINAL RESULT.
0735			23,7412	64511 0		XCHX,2	INCR,2	INCREMENT COMPENSATES FOR .5 R IN 30D.
0736			23,7413	44351 0		VSLT*	LXA,2	
0737			23,7414	00035 1			28D	
0738			23,7415	00037 0			30D	
0739	REF	3 LAST 311	23,7416	00051 0			S1	
0740	REF	4 LAST 317	23,7417	06304 0			DP1/4	
0741			23,7420	77777 0			-	
0742	REF	4 LAST 324	23,7421	00051 0			S1	
0743			23,7422	00004 0			3	
0744			23,7423	00002 0			0,2	
0745	REF	5 LAST 324	23,7424	00051 0			S1	
0746	REF	11 LAST 323	23,7425	33203 0		STORE	FV	
0747			23,7426	76376 1		ITC*	0	CALL NYSTROM ROUTINES ACCORDING TO X1.
0748	REF	2 LAST 316	23,7427	16405 1			DIFEQ,1	

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0749		23,7430	24214 0	EARTHTAB	2DEC	.6335627	400 / SQRT(MU).
C0749		23,7431	11244 0				
0750		23,7432	36000 1	15/16	2DEC	15. B -4	
C0750		23,7433	00000 1				
0751		23,7434	30000 1	3/4	2DEC	3.0 B -2	
C0751		23,7435	00000 1				
0752		23,7436	12577 1	J2REQSQ	2DEC	.335914874	
C0752		23,7437	24106 0				
0753		23,7440	77711 0	2J3RE/J2	2DEC	-.003309146	
C0753		23,7441	71033 1				
0754		23,7442	23377 0	J4REQ/J3	2DEC	.60932709	
C0754		23,7443	06703 0				
0755	REF 3 LAST 321		23,7230	2/3	EQUALS	DP2/3	
0756			0000	P2*/8	EQUALS	0	
0757			0002	P3*/4	EQUALS	2	
0758			0004	P4*/16	EQUALS	4	
0759		23,7444	20000 0	DP1/2	2DEC	.5	
C0759		23,7445	00000 1				
075901		23,7446	14467 1	DENBASE	2DEC	6455 B-14	EARTHTRAD +100 KM SCALED AT 2 TO THE (14)
C075901		23,7447	00000 1				
075902		23,7450	31000 0	DENFACT	2DEC	0.781250	200/256
C075902		23,7451	00000 1				
075903		23,7452	70345 1	DEN4	2DEC	-7.55161127 B-5	CONSTANTS FOR DENSITY FUNCTION SCALED AT
C075903		23,7453	62314 0				
075904		23,7454	25201 0	DEN3	2DEC	21.2523654 B-5	2 TO THE (5)
C075904		23,7455	06602 0				
075905		23,7456	54046 1	DEN2	2DEC	-19.9253572 B-5	
C075905		23,7457	46744 1				
075906		23,7460	20033 0	DEN1	2DEC	16.0533069 B-5	
C075906		23,7461	11303 1				
075907		23,7462	01000 0	DEN0	2DEC	1.0 B-5	
C075907		23,7463	00000 1				
075908		23,7464	00000 1	PACD/M	2DEC	0.0000363648	(RHO AREA CD)/MASS AT 100KM
C075908		23,7465	23042 0				
075909		23,7466	00000 1	OMEGA	2DEC	0	EARTH ROT VECTOR/SQRT(MU) SCALED
C075909		23,7467	00000 1				
07591		23,7470	00000 1		2DEC	0	AT 2 TO THE (-23) KM TO (-3/2)
C07591		23,7471	00000 1				
075911		23,7472	37002 1		2DEC	0.968892208	
C075911		23,7473	12436 0				
075912			0032	DENALT	=	26D	TEMPORARY STORAGE FOR ALTITUDE
075913		23,7474	14777 0	DENCEIL	2DEC	6655 B-14	EARTHTRAD +300 KM SCALED AT 2(14)
C075913		23,7475	00000 1				

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6
340
13
27

L ORBITAL INTEGRATION FOR 501				30,6000			SETLOC 60000		USER'S OWN PAGE NO. 1	
0001										
0002				30,6000	53574	1	AVETOMD1	AXC,1	2	
0003				30,6001	45535	0		ITA	SXA,1	
0004				30,6002	76776	0		ITC		
0005				30,6003	00002	0			1	
0006	REF	1		30,6004	01303	0			MIDEXIT	
0007	REF	1		30,6005	01301	1			MEASMODE	
0008	REF	1		30,6006	20015	1			AVETOMID	
0009				30,6007	53575	0	AVETOMD2	AXC,1	1	
0010				30,6010	45535	0		ITA	SXA,1	
0011				30,6011	00003	1			2	
0012	REF	2	LAST 326	30,6012	01303	0			MIDEXIT	
0013	REF	2	LAST 326	30,6013	01301	1			MEASMODE	
0014				30,6014	75170	0	AVETOMID	VMOVE	6	
0015				30,6015	75535	0		AXT,1	SXA,1	
0016				30,6016	75535	0		AXT,1	SXA,1	
0017				30,6017	75535	0		AXT,1	SXA,1	
0018				30,6020	75535	0		AXT,1	SXA,1	
0019				30,6021	75535	0		AXT,1	SXA,1	
0020				30,6022	75535	0		AXT,1	SXA,1	
0021	REF	1		30,6023	15575	1			ZEROVEC	
0022				30,6024	00001	0			0	
0023	REF	3	LAST 322	30,6025	01304	1			WMATFLAG	TURN OFF WMATRIX INTEGRATION.
0024	REF	10	LAST 319	30,6026	00021	1			RSCALE	
0025	REF	2	LAST 308	30,6027	01313	1			SCALER	SET SCALE OF POSITION.
0026				30,6030	00005	1			4	
0027	REF	2	LAST 308	30,6031	01312	0			SCALDELT	ALSO DEVIATION.
0028				30,6032	00023	0			18D	
0029	REF	1		30,6033	01311	0			SCALEDT	AND TIME STEP.
0030	REF	2	LAST 296	30,6034	07431	0			EARTH TAB	
0031	REF	1		30,6035	01040	1			PBODY	
0032	REF	1		30,6036	20070	1			TESTTET	
0033	REF	2	LAST 321	30,6037	01305	0			STEPEXIT	
0034	REF	3	LAST 321	30,6040	33115	1	STORE		TDELTA V	ZERO POSITION DEVIATION.
0035				30,6041	47576	0	NOLOD		0	
0036	REF	6	LAST 321	30,6042	33123	1	STORE		TNUV	ALSO VELOCITY.
0037				30,6043	47576	0	NOLOD		0	
0038	REF	5	LAST 322	30,6044	33145	1	STORE		TC	AND TIME SINCE RECTIFICATION, TIME, AND KEPLER X.

L ORBITAL INTEGRATION FOR 501

USER'S OWN PAGE NO. 2

0039			30,6045	75575 1	AXT,1	1	
0040			30,6046	55576 0	AST,1		
0041			30,6047	00015 0		12D	
0042			30,6050	00007 0		6	
0047			30,6051	75375 1	RVTOMID	VXSC*	1
0048			30,6052	51622 0		VXM	VSLT
0049	REF	11 LAST 319	30,6053	02231 0			RRECT +12D,1
0050	REF	1	30,6054	27273 1			SCLRAVMD +12D,1
0051	REF	1	30,6055	01052 1			REFSMMAT
0052			30,6056	00003 1			2
0053	REF	12 LAST 327	30,6057	36231 1	STORE		RRECT +12D,1
0054			30,6060	47576 0	NOLOD	0	
0055	REF	6 LAST 319	30,6061	36311 1	STORE		RCV +12D,1
0056			30,6062	51576 1	1IX,1	0	
0057	REF	1	30,6063	20052 1			RVTOMID
0058			30,6064	45176 0	DMOVE	0	
0059	REF	3 LAST 157	30,6065	01211 1			TAVEGON
0063	REF	1	30,6066	33267 1	STORE		TDEC

TRANSFORM POSITION AND VELOCITY TO

L ORBITAL INTEGRATION FOR 501

USER'S OWN PAGE NO. 3

0064			30,6067	77576 0	TESTTET	EXIT	0	FOR DUMP ONLY
00643	REF	4 LAST 301	30,6070	0 4000 0		TC	INTPRET	
00647			30,6071	71575 0		LXC,1	1	
0065			30,6072	55445 1		AST,1	TIX,1	
0066	REF	3 LAST 326	30,6073	01301 1			MEASMODE	
0067			30,6074	00002 0			1	
0068			30,6075	20101 0			+3	
0069			30,6076	76776 0		ITC	0	
0070			30,6077	20104 0			+4	
0071			30,6100	43576 1		TEST	0	
0072	REF	1	30,6101	00023 0			UPDATFLG	
0073	REF	1	30,6102	10310 1			NOSTATE	
0074			30,6103	72776 1		STZ	0	
0075	REF	14 LAST 309	30,6104	00123 1			OVFIND	
0076			30,6105	66774 0		DSJ	2	
00765			30,6106	76516 1		RTB	TSLT	
0077			30,6107	62776 0		DDV		
0078	REF	2 LAST 327	30,6110	01267 0			TDEC	
0079	REF	3 LAST 296	30,6111	01147 1			TET	
00795	REF	1	30,6112	20404 0			SGNAGREE	
0080			30,6113	00014 1			11D	
0081	REF	3 LAST 326	30,6114	07431 0			EARTH TAB	
0082	REF	4 LAST 323	30,6115	33263 0		STORE	DT/2	
0083			30,6116	71773 1		BDV	3	
0084			30,6117	65132 1		ABS	DSU	
0085			30,6120	73742 1		BMN	DAD	
0086			30,6121	66756 0		DSJ	BMN	
0087	REF	1	30,6122	20132 0			USEMAXDT	
0088	REF	5 LAST 328	30,6123	01263 1			DT/2	
0089	REF	1	30,6124	20246 0			DT/2MIN	
0090	REF	1	30,6125	20141 1			DODCSION	
0091	REF	2 LAST 328	30,6126	20246 0			DT/2MIN	
0092	REF	1	30,6127	20250 1			DT/2MAX	
0093	REF	1	30,6130	07110 0			TIMESTEP	
0094			30,6131	45175 0	USEMAXDT	DMOVE	1	
0095			30,6132	53776 1		SIGN		
0096	REF	2 LAST 328	30,6133	20250 1			DT/2MAX	
0097	REF	6 LAST 328	30,6134	01263 1			DT/2	
0098	REF	7 LAST 328	30,6135	33263 0		STORE	DT/2	
0099			30,6136	76776 0		ITC	0	
0100	REF	2 LAST 328	30,6137	07110 0			TIMESTEP	

ORBITAL INTEGRATION FOR 501						USER'S OWN PAGE NO. 4		
0101				30,6140	76776 0	DODCSION ITC	0	RECTIFY TO OBTAIN FULL POSITION AND VELOCITY VECTORS.
0102	REF	2 LAST 317		30,6141	07144 1		RECTIFY	
0103				30,6142	43175 0		SMOVE 1	
0104				30,6143	73636 0		BMN BZE	
0105	REF	4 LAST 328		30,6144	01301 1		MEASMODE	TEST MEASMODE.
0106	REF	1		30,6145	20176 0		AVEGON	MEASMODE = -1.
0107	REF	1		30,6146	20222 1		IGN-4SEC	MEASMODE = 0.
0108				30,6147	75575 1		AXT,1 1	MEASMODE = +1.
0109				30,6150	55576 0		AST,1	
0110				30,6151	00015 0		12D	
0111				30,6152	00007 0		6	
0112				30,6153	75375 1	RVTOAVE	VXSC* 1	TRANSFORM POSITION AND VELOCITY VECTORS
0113				30,6154	52622 0		MXV VSLT	
0114	REF	13 LAST 327		30,6155	02231 0		RRECT +12D,1	
0115	REF	1		30,6156	27277 0		SCLRMDAV +12D,1	
0116	REF	2 LAST 327		30,6157	01052 1		REFSMMAT	
0117				30,6160	00002 0		1	
0118	REF	1		30,6161	36231 1		STORE RIGNTION +12D,1	
0119				30,6162	75375 1		VXSC* 1	
0120				30,6163	52622 0		MXV VSLT	
0121	REF	7 LAST 157		30,6164	02461 0		RAVEGON +12D,1	
0122	REF	2 LAST 329		30,6165	27277 0		SCLRMDAV +12D,1	
0123	REF	3 LAST 329		30,6166	01052 1		REFSMMAT	
0124				30,6167	00002 0		1	
0125	REF	8 LAST 329		30,6170	36461 1		STORE RAVEGON +12D,1	
0126				30,6171	51576 1		TIX,1 0	
0127	REF	1		30,6172	20154 0		RVTOAVE	
0128				30,6173	44576 0		ITCI 0	
0129	REF	3 LAST 326		30,6174	01303 0		MIDEXIT	RETURN.

L ORBITAL INTEGRATION FOR 501

USER'S OWN PAGE NO. 5

0130			30,6175	75176 0	AVEGON	VMOVE	0	SAVE POSITION AND VELOCITY AT
0131	REF	14 LAST 329	30,6176	01101 0			RRECT	AVERAGE G ON TIME.
0132	REF	9 LAST 329	30,6177	33215 1		STORE	RAVEGON	
0133			30,6200	75176 0		VMOVE	0	
0134	REF	12 LAST 319	30,6201	01107 0			VRECT	
0135	REF	7 LAST 157	30,6202	33223 1		STORE	VAVEGON	
0136			30,6203	71575 0		LXC,1	1	
0137			30,6204	55445 1		AST,1	TIX,1	
0138	REF	5 LAST 329	30,6205	01301 1			MEASMODE	
0139			30,6206	00002 0			1	
0140	REF	2 LAST 329	30,6207	20150 1			RVTOAVE -4	
0141			30,6210	70775 0		DAD	1	
0142			30,6211	75535 0		AXT,1	SXA,1	
0143	REF	3 LAST 328	30,6212	01267 0			TDEC	
0144	REF	1	30,6213	20242 1			12M56S	12 MINUTES, 56 SECS
0145			30,6214	00001 0			0	
0146	REF	6 LAST 330	30,6215	01301 1			MEASMODE	MAKE MEASMODE 0.
0147	REF	4 LAST 330	30,6216	33267 1		STORE	TDEC	
0148			30,6217	76776 0		ITC	0	
0149	REF	2 LAST 326	30,6220	20070 1			TESTTET	CONTINUE INTEGRATION.
0150			30,6221	75775 0	IGN-4SEC	VXSC	1	TRANSFORM AND SAVE POSITION ONLY
0151			30,6222	52622 0		MXV	VSLT	
0152	REF	15 LAST 330	30,6223	01101 0			RRECT	
0153	REF	3 LAST 329	30,6224	13524 0			SCLRMDAV	
0154	REF	4 LAST 329	30,6225	01052 1			REFSMAT	
0155			30,6226	00002 0			1	
0156	REF	1	30,6227	33231 1		STORE	RIG-4SEC	
0157			30,6230	70775 0		DAD	1	
0158			30,6231	75535 0		AXT,1	SXA,1	
0159	REF	5 LAST 330	30,6232	01267 0			TDEC	
0160	REF	1	30,6233	20244 1			4SECONDS	ADD 4 SECONDS TO DECISION TIME.
0161			30,6234	00002 0			1	
0162	REF	7 LAST 330	30,6235	01301 1			MEASMODE	MAKE MEASMODE +1.
0163	REF	6 LAST 330	30,6236	33267 1		STORE	TDEC	
0164			30,6237	76776 0		ITC	0	
0165	REF	3 LAST 330	30,6240	20070 1			TESTTET	DO LAST INTEGRATION STEP.

L ORBITAL INTEGRATION FOR 501

USER'S OWN PAGE NO. 6

0166	30,6241	00004 0	12M56S	2DEC	77600	12 MINUTES, 56 SECS
C0166	30,6242	27440 1				
0167	30,6243	00000 1	4SECONDS	2DEC	400	
C0167	30,6244	00620 0				
01675	30,6245	00000 1	DT/2MIN	2DEC	.000024	
C01675	30,6246	14452 1				
01676	30,6247	12317 1	DT/2MAX	2DEC	.65027077 B-1	.075 HOUR MAXIMUM TIME STEP
C01676	30,6250	00451 1				
0168	30,6251	30000 1	INITMSK	DCT	30000	

252

Handwritten calculations and a large 'X' mark:

2
8
32
128
170
1

8

L PRELAUNCH ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 1

R0001 THE PRELAUNCH ALIGNMENT PROGRAM CONSISTS OF TWO PARTS- VERTICAL ERECTION AND GYROCOMPASSING. IN THE FIRST CASE
 R0003 THE Z PIPA INPUTS ARE USED TO CONTROL THE Y GYRO IN SUCH A WAY THAT THESE INPUTS ARE NULLED. A SIMILAR SIT-
 R0005 UATION APPLIES TO THE Y PIPA INPUTS AND THE Z GYRO. IN THE GYROCOMPASSING CASE, THE Y PIPA INPUTS ARE USED IN
 R0007 EXACTLY THE SAME FASHION AS IN VERTICAL ERECTION. THE Z PIPA INPUTS ARE SPLIT BETWEEN THE Y GYRO TO HOLD THE
 R0009 VERTICAL AND THE X GYRO TO POINT THE Z AXIS ALONG SOME DESIRED AZIMUTH.

R0010 WHILE PRELAUNCH IS ACTIVE IT STAYS IN THE EXECUTIVE AND USES THE SLEEP/WAKE FEATURES. BY THIS MEANS MOST
 R0012 ERASABLE USAGE IS CONFINED TO A VAC AREA. THE ASSIGNMENT IS AS FOLLOWS-

0013			0042	SINLAM	=	34D	SIN OF LATITUDE
0014			0044	COSLAM	=	36D	COSINE OF LATITUDE
0015			0002	SINAZ	=	2	SIN OF AZIMUTH
0016			0004	COSAZ	=	4	COSINE OF AZIMUTH
0017			21,6000	SETLOC		42000	
0018	REF	5 LAST 328	21,6000	0 4000 0	TOP1	TC	INTPRET
0019			21,6001	45175 0		DMOVE	1
0020			21,6002	76575 1		RTB	EXIT
0021	REF	1	21,6003	01317 0			AZIMUTH
0022	REF	1	21,6004	20325 1			1ST02S
0023	REF	14 LAST 294	21,6005	0 3302 0		TC	GRABDSP
0024	REF	14 LAST 294	21,6006	0 3310 0		TC	PREGBSY
0025	REF	286 LAST 288	21,6007	3 0115 1		XCH	MPAC
0026	REF	14 LAST 289	21,6010	5 0616 0		TS	DSPTM1
0027	REF	98 LAST 291	21,6011	3 5501 0		CAF	ZERO
0028	REF	15 LAST 332	21,6012	5 0617 1		TS	DSPTM1 +1
0029	REF	1	21,6013	0 7542 0		TC	CHECKNV
0030			21,6014	00661 0		OCT	00661
							DISPLAY AZIMUTH (N.B. CAN NOT BE MODIFIED ...ALK)
0031	REF	1	21,6015	0 6745 1		TC	PRELEXIT -1
0032	REF	6 LAST 332	21,6016	0 4000 0		TC	INTPRET
0033			21,6017	63776 1		TSLT	0
0034	REF	1	21,6020	01315 1			LATITUDE
0035			21,6021	00003 1			2
0036	REF	16 LAST 332	21,6022	32620 1		STORE	DSPTM1 +1
0037			21,6023	45175 0		DMOVE	1
0038			21,6024	76575 1		RTB	EXIT
0039	REF	1	21,6025	01353 0			VAZ
0040	REF	2 LAST 332	21,6026	20325 1			1ST02S
0041	REF	287 LAST 332	21,6027	3 0115 1		XCH	MPAC

L		PRELAUNCH ALIGNMENT PROGRAM				USER'S OWN PAGE NO. 2	
0042	REF	17 LAST 332	21,6030	5 0616 0	TS	DSPTM1	
0043	REF	2 LAST 332	21,6031	0 7542 0	TC	CHECKNV	DISPLAY VEHICLE AZIMUTH, LATITUDE
0044			21,6032	00661 0	OCT	00661	(SEE N.B. ABOVE)
0045	REF	2 LAST 332	21,6033	0 6745 1	TC	PRELEXIT -1	
00455	REF	17 LAST 294	21,6034	0 3362 0	TC	FREEDSP	DONE WITH DSKY.
0046	REF	7 LAST 332	21,6035	0 4000 0	TC	INTPRET	
0047			21,6036	45175 0	TOP3	DMOVE 1	COMPUTES GIMBAL ANGLES
0048			21,6037	76565 0	RTB	AXT,1	
0049	REF	1	21,6040	15617 0		SCNBMAT +8D	
0050	REF	1	21,6041	20271 1		ZEROVAC	
0051			21,6042	00023 0		18D	
0052			21,6043	32001 1	STORE	0	
0053			21,6044	55176 1	CDS	0	
0054	REF	2 LAST 332	21,6045	01353 0		VAZ	
0055			21,6046	32011 0	STORE	8D	
0056			21,6047	47576 0	NLOD	0	
0057			21,6050	32021 0	STORE	16D	
0058			21,6051	57176 0	SIN	0	
0059	REF	3 LAST 333	21,6052	01353 0		VAZ	
0060			21,6053	32017 0	STORE	14D	
0061			21,6054	47575 0	NLOD	1	
0062			21,6055	47065 1	COMP	AST,1	
0063			21,6056	00007 0		6	
0064			21,6057	32013 1	STORE	10D	
0065			21,6060	74175 1	TOP33	VMOVE* 1	
0066			21,6061	51622 0	VXM	VSLT	
0067	REF	2 LAST 333	21,6062	33461 1		SCNBMAT +18D,1	
0068			21,6063	00001 0		0	
0069			21,6064	00002 0		1	
0070	REF	2 LAST 31	21,6065	37241 1	STORE	XNB +18D,1	
0071			21,6066	51576 1	TIX,1	0	
0072	REF	1	21,6067	02061 1		TOP33	
0073			21,6070	76776 0	ITC	0	
0074	REF	1	21,6071	03446 1		MAKEXSM	
0075			21,6072	76776 0	ITC	0	
0076	REF	1	21,6073	04644 0		CALCGA	

L PRELAUNCH ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 3

0077			21,6074	47575 0		NOLOD 1
0078			21,6075	77176 1		TP
0079	REF	1	21,6076	33323 0		STORE PRELXGA
0080			21,6077	77576 0		EXIT 0

R0081 ENTER AT TOP2 IF GIMBAL ANGLES, AZIMUTH, LATITUDE ALREADY KEYED IN

0082	REF	35	LAST 278	21,6100	0 5654 0	TOP2	TC	BANKCALL	GO AND START CDU ZEROING
0083	REF	2	LAST 239	21,6101	30000 1		CADR	IMUZERO	
0084	REF	8	LAST 286	21,6102	0 2362 1		TC	NEWMODE	
0085				21,6103	00001 0		OCT	01	INITIALIZATION.
0086	REF	1		21,6104	3 3543 0		CAF	NINETEEN	INITIALIZE ERASABLE MEMORY TO ZEROS
0087	REF	1		21,6105	3 1446 0	ZEROS1	XCH	THETAY	
0088	REF	99	LAST 332	21,6106	3 5501 0		CAF	ZERO	
0089	REF	2	LAST 334	21,6107	2 1446 1		INDEX	THETAY	
0090	REF	1		21,6110	5 1356 0		TS	FILTER	
0091	REF	3	LAST 334	21,6111	1 1446 1		CCS	THETAY	
0092	REF	1		21,6112	0 6105 0		TC	ZEROS1	
0093	REF	1		21,6113	3 3533 1		CAF	ELEVEN	
0094	REF	4	LAST 334	21,6114	3 1446 0	ZEROS2	XCH	THETAY	
0095	REF	100	LAST 334	21,6115	3 5501 0		CAF	ZERO	
0096	REF	5	LAST 334	21,6116	2 1446 1		INDEX	THETAY	
0097	REF	6	LAST 334	21,6117	5 1446 0		TS	THETAY	
0098	REF	7	LAST 334	21,6120	1 1446 1		CCS	THETAY	
0099	REF	1		21,6121	0 6114 0		TC	ZEROS2	
0100	REF	1		21,6122	3 3571 1		CAF	SIXHNRD	INITIALIZE FOR 5 MIN VERTICAL
0101	REF	1		21,6123	5 1320 1		TS	GYROCSW	
0102	REF	36	LAST 334	21,6124	0 5654 0		TC	BANKCALL	INITIALIZATION COMPLETE SO STALL
0103	REF	11	LAST 251	21,6125	30331 0		CADR	IMUSTALL	
0104	REF	3	LAST 333	21,6126	0 6746 1		TC	PRELEXIT	
0105	REF	2	LAST 334	21,6127	4 1322 1		CS	PRELXGA	LOAD DESIRED CDU ANGLES.
0106				21,6130	4 0000 0		COM		
0107	REF	12	LAST 241	21,6131	5 0700 0		TS	THETAD	
0108	REF	1		21,6132	4 1323 0		CS	PRELYGA	
0109				21,6133	4 0000 0		COM		
0110	REF	13	LAST 334	21,6134	5 0701 1		TS	THETAD +1	
0111	REF	1		21,6135	4 1324 1		CS	PRELZGA	
0112				21,6136	4 0000 0		COM		
0113	REF	14	LAST 334	21,6137	5 0702 1		TS	THETAD +2	

L PRELAUNCH ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 4

0114	REF	1		21,6140	0 2276 0		TC	PHASCHNG	GO INTO COARSE ALIGN PHASE.
0115				21,6141	02103 1		OCT	02103	3.17 RESTART.
0116	REF	37 LAST 334		21,6142	0 5654 0	REPL11	TC	BANKCALL	
0117	REF	2 LAST 240		21,6143	30104 1		CADR	IMUCOARS	
0118	REF	38 LAST 335		21,6144	0 5654 0		TC	BANKCALL	NOTHING TO DO BUT SLEEP
0119	REF	12 LAST 334		21,6145	30331 0		CADR	IMUSTALL	
0120	REF	4 LAST 334		21,6146	0 6746 1		TC	PRELEXIT	
0121	REF	2 LAST 335		21,6147	0 2276 0	STARTPL2	TC	PHASCHNG	START FINE ALIGN - INITIALIZATION PHASE.
0122				21,6150	02203 1		OCT	02203	3.18 RESTART.
0123	REF	39 LAST 335		21,6151	0 5654 0	REPL12	TC	BANKCALL	
0124	REF	2 LAST 242		21,6152	30143 1		CADR	IMUFINE	
0125	REF	3 LAST 206		21,6153	0 2676 1		TC	READTIME	
0126	REF	17 LAST 208		21,6154	4 0572 0		CS	RUPTSTOR	
0127	REF	1		21,6155	5 1370 1		TS	PREVTIME	
0128	REF	18 LAST 335		21,6156	4 0573 1		CS	RUPTSTOR +1	
0129	REF	2 LAST 335		21,6157	5 1371 0		TS	PREVTIME +1	
0130				21,6160	2 0016 1		RELINT		
0131	REF	40 LAST 335		21,6161	0 5654 0		TC	BANKCALL	SLEEP
0132	REF	13 LAST 335		21,6162	30331 0		CADR	IMUSTALL	
0133	REF	5 LAST 335		21,6163	0 6746 1		TC	PRELEXIT	
0134	REF	9 LAST 334		21,6164	0 2362 1		TC	NEWMODE	SET MAJOR MODE TO VERTICAL ERECTION
0135				21,6165	00005 1		OCT	5	(COUNTING)
0136	REF	101 LAST 334		21,6166	3 5501 0		CAF	ZERO	
0137	REF	1		21,6167	5 1332 1		TS	INFLANG	
0138	REF	2 LAST 335		21,6170	5 1333 0		TS	INFLANG +1	
0139	REF	3 LAST 335		21,6171	5 1334 1		TS	INFLANG +2	
0140	REF	4 LAST 335		21,6172	5 1335 0		TS	INFLANG +3	
0141	REF	5 LAST 335		21,6173	5 1336 0		TS	INFLANG +4	
0142	REF	6 LAST 335		21,6174	5 1337 1		TS	INFLANG +5	
0143	REF	1		21,6175	5 0045 0		TS	PIPAY	SET ALL PIPAS TO ZERO
0144	REF	1		21,6176	5 0046 0		TS	PIPAZ	
0145	REF	1		21,6177	5 0044 1		TS	PIPAX	
0146	REF	1		21,6200	3 3532 0		CAF	NINE	
0147	REF	1		21,6201	5 1321 0		TS	PRELTEMP	
0148	REF	1		21,6202	3 7011 0		CAF	PLPIPADT	SET UP DELTA TIME FOR IMU COMPENSATION.
0149	REF	4 LAST 219		21,6203	5 0755 0		TS	1/PIPADT	

L PRELAUNCH ALIGNMENT PROGRAM

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0150				21,6204	2 0017 0	INHINT	
0151	REF	1		21,6205	3 7002 1	CAF PRELDT	SET WAITLIST TO WAKE JOB
0152	REF	44 LAST 289		21,6206	0 2173 0	TC WAITLIST	
0153	REF	1		21,6207	42211 0	CADR PRELALTS	
0154	REF	40 LAST 294		21,6210	0 2124 1	TC ENDOFJOB	

L PRELAUNCH ALIGNMENT PROGRAM

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P0155 PRELAUNCH WAITLIST TASK - EXECUTED EVERY .5 SEC. IN LOOP.

0156	REF	1		21,6211	3 6264 1	PRELALTS	CAF	PIPCAD21	
0157	REF	1		21,6212	0 5750 0		TC	ISWCALL	
0158	REF	1		21,6213	3 3544 1		CAF	TWENTYO	
0159	REF	1		21,6214	0 2312 0		TC	NEWPHASE	
0160				21,6215	00003 1		OCT	3	
0161	REF	14	LAST 270	21,6216	4 0036 0	REDO3.20	CS	TIME1	
0162	REF	1		21,6217	5 0665 1		TS	TBASE3	
0163	REF	45	LAST 285	21,6220	3 5503 1		CAF	TWO	
0164	REF	1		21,6221	5 1035 0		TS	PIPAGE	
0165	REF	11	LAST 191	21,6222	3 0006 1		XCH	IN2	TEST IN2 FOR GRR OR LIFT-OFF
0166	REF	12	LAST 337	21,6223	3 0006 1		XCH	IN2	
0167	REF	1		21,6224	7 7017 1		MASK	BITS56	
0168	REF	295	LAST 293	21,6225	1 0000 0		CCS	A	
0169	REF	1		21,6226	0 6242 0		TC	PRELTERM	
0170	REF	10	LAST 265	21,6227	3 4515 1		CAF	BIT2	CHECK IF LIFT-OFF HAS OCCURRED
0171	REF	10	LAST 261	21,6230	7 0646 1		MASK	FLAGWRD1	
0172	REF	296	LAST 337	21,6231	1 0000 0		CCS	A	
0173	REF	2	LAST 337	21,6232	0 6242 0		TC	PRELTERM	IT HAS. TERMINATE PRELAUNCH
0174	REF	2	LAST 336	21,6233	3 7002 1		CAF	PRELDT	SELF-SUSTAINING WAITLIST CALL
0175	REF	45	LAST 336	21,6234	0 2173 0		TC	WAITLIST	
0176	REF	2	LAST 336	21,6235	42211 0		CADR	PRELALTS	
0177	REF	3	LAST 257	21,6236	3 4501 1	NOPLWAIT	CAF	PRI020	
0178	REF	9	LAST 260	21,6237	0 2046 1		TC	FINDVAC	
0179	REF	1		21,6240	42270 1		CADR	PRAWAKE	
0180	REF	36	LAST 289	21,6241	0 2256 1		TC	TASKOVER	RESUME
0181	REF	19	LAST 335	21,6242	4 0573 1	PRELTERM	CS	RUPTSTOR +1	N.B. READTIME IS DONE IN PIPASR ABOVE
0182	REF	2	LAST 157	21,6243	5 1467 0		TS	TIME1GR	
0183	REF	20	LAST 337	21,6244	4 0572 0		CS	RUPTSTOR	
0184	REF	2	LAST 157	21,6245	5 1466 1		TS	TIME2GR	
0189	REF	3	LAST 337	21,6246	4 1467 1		CS	TIME1GR	
0190	REF	1		21,6247	5 0667 0		TS	TBASE5	
0191	REF	112	LAST 294	21,6250	3 4516 1		CAF	ONE	
0192	REF	2	LAST 337	21,6251	0 2312 0		TC	NEWPHASE	
0193				21,6252	00005 1		OCT	00005	
0194	REF	297	LAST 337	21,6253	1 0000 0		CCS	A	
0195	REF	1		21,6254	0 6236 0		TC	NOPLWAIT	

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0196			21,6255	0 6256 0	TC	+1	
0197	REF	1	21,6256	3 7014 0	CAF	2SEC21	CALL READACCS IN 2 SECS
0198	REF	46 LAST 337	21,6257	0 2173 0	TC	WAITLIST	
0199	REF	1	21,6260	65152 1	CADR	READACCS	
0200	REF	2 LAST 337	21,6261	0 6236 0	TC	NOPLWAIT	
0201	REF	1	21,6262	3 6265 0	REPRELAL CAF	REPIP21	
0202	REF	3 LAST 337	21,6263	0 6212 0	TC	PRELALTS +1	
0203	REF	1	21,6264	61313 1	PIPCAD21 CADR	PIPASR	
0204	REF	1	21,6265	61364 1	REPIP21 CADR	REPIPASR	

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0205	REF	1		21,6266	0 7223 0	REDO3.21	TC	PRLRSTOR	
0206	REF	1		21,6267	0 6301 0		TC	RE3.21	
0207	REF	1		21,6270	0 7174 1	PRAWAKE	TC	PRLSAVE	
0208	REF	1		21,6271	1 0654 1		CCS	PHASE5	CHECK IF GRR HAS OCCURED.
02082	REF	2	LAST 334	21,6272	3 3543 0		CAF	NINETEEN	3.19 RESTART.
02085				21,6273	0 6275 1		TC	+2	
0209	REF	1		21,6274	3 3545 0		CAF	TWENTY1	3.21 RESTART.
02092	REF	3	LAST 337	21,6275	0 2312 0		TC	NEWPHASE	
02095				21,6276	00003 1		DCT	3	
0210	REF	41	LAST 335	21,6277	0 5654 0		TC	BANKCALL	
0211	REF	2	LAST 215	21,6300	31017 0		CADR	1/PIPA	
0212	REF	8	LAST 333	21,6301	0 4000 0	RE3.21	TC	INTPRET	
0213				21,6302	43176 0		SMOVE	0	ZERO TO THEAT-SOUTH
0214	REF	1		21,6303	03005 1			ZEROPR	
0215	REF	1		21,6304	33455 0		STORE	THETASTH	
0216				21,6305	47576 0		NOLOD	0	
0217	REF	1		21,6306	33457 1		STORE	THETA E	ZERO TO THETA EAST
0218				21,6307	76575 1		RTB	1	
0219				21,6310	57176 0		SIN		
0220	REF	2	LAST 333	21,6311	20271 1			ZEROVAC	
0221	REF	2	LAST 332	21,6312	01315 1			LATITUDE	
0222	REF	1		21,6313	32043 1		STORE	SINLAM	
0223				21,6314	55176 1		COS	0	
0224	REF	3	LAST 339	21,6315	01315 1			LATITUDE	
0225	REF	1		21,6316	32045 1		STORE	COSLAM	
0226				21,6317	43175 0		SMOVE	1	
0227				21,6320	66776 1		DSJ		
0228	REF	1		21,6321	03001 0			90DEGAZ	
0229	REF	2	LAST 332	21,6322	01317 0			AZIMUTH	
0230				21,6323	57176 0		SIN	0	
0231				21,6324	00001 0			0	
0232	REF	1		21,6325	32003 0		STORE	SINAZ	
0233				21,6326	55176 1		COS	0	
0234	REF	1		21,6327	32005 0		STORE	COSAZ	
0235				21,6330	77576 0		EXIT	0	
0236	REF	2	LAST 339	21,6331	1 0654 1		CCS	PHASE5	CHECK IF GRR HAS OCCURRED
0237	REF	1		21,6332	0 7032 1		TC	PRELTER1	

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0238			21,6333	0 6334 0	TC	+1	
0239	REF	11 LAST 263	21,6334	0 2346 1	TC	CHECKMM	CHECK IF VERTICAL ERECTION (UNCONDIT.)
0240			21,6335	00005 1	OCT	5	
0241			21,6336	0 6340 0	TC	+2	
0242	REF	1	21,6337	0 6451 1	TC	NOGYROCM	
0243	REF	12 LAST 340	21,6340	0 2346 1	TC	CHECKMM	CHECK IF VERTICAL ERECTION (UNCONDIT.)
0244			21,6341	00006 1	OCT	6	
0245			21,6342	0 6344 1	TC	+2	
0246	REF	1	21,6343	0 6457 1	TC	TJL	
0247	REF	13 LAST 340	21,6344	0 2346 1	DOGYROC TC	CHECKMM	CHECK IF OPTICAL VERIFICATION
0248			21,6345	00003 1	OCT	3	
0249	REF	1	21,6346	0 6352 0	TC	DOGYROC1	
0254	REF	9 LAST 339	21,6347	0 4000 0	JSTERTHR TC	INTPRET	
0255			21,6350	76776 0	ITC	0	
0256	REF	1	21,6351	02360 0		EARTHRR	
0257	REF	10 LAST 335	21,6352	0 2362 1	DOGYROC1 TC	NEWMODE	
0258			21,6353	00002 0	OCT	2	
0259	REF	10 LAST 340	21,6354	0 4000 0	DOGYROC2 TC	INTPRET	
0260			21,6355	76776 0	ITC	0	
0261	REF	1	21,6356	02575 1		GYROCOM	
0262			21,6357	76776 0	EARTHRR ITC	0	
0263	REF	1	21,6360	02515 1		EATHRAT	
0264			21,6361	45176 0	ENDOFPR DMOVE	0	
0265	REF	3 LAST 157	21,6362	01465 1		PIPTIME	
0266	REF	3 LAST 335	21,6363	33371 1	STORE	PREVTIME	
0267			21,6364	77576 0	EXIT	0	
0268	REF	2 LAST 335	21,6365	1 1321 1	CCS	PRELTEMP	
0269	REF	1	21,6366	0 6436 0	TC	JUMPY	
0270	REF	9 LAST 234	21,6367	1 0764 0	CCS	LGYRO	
0271	REF	2 LAST 340	21,6370	0 6437 1	TC	JUMPY + 1	IF BUSY GO AROUND LOOP AGAIN WAIT TIL NEXT TIME. PRELTEM = 0 STILL.
0278	REF	102 LAST 335	21,6371	3 5501 0	PTORQUE CAF	ZERO	INITIALIZE TORQUING REGISTERS AND RESET
0279	REF	1	21,6372	3 1452 0	XCH	THETAX	
0280	REF	7 LAST 335	21,6373	6 1333 0	AD	INFLANG +1	
0281	REF	1	21,6374	5 1341 0	TS	GYROANG +1	
0282	REF	103 LAST 340	21,6375	3 5501 0	CAF	ZERO	
0283	REF	8 LAST 340	21,6376	6 1332 1	AD	INFLANG	

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0284	REF	2	LAST	340	21,6377	5	1340	1	TS	GYROANG
0285	REF	104	LAST	340	21,6400	3	5501	0	CAF	ZERO
0286	REF	8	LAST	334	21,6401	3	1446	0	XCH	THETAY
0287	REF	9	LAST	340	21,6402	6	1335	0	AD	INFLANG +3
0288	REF	3	LAST	341	21,6403	5	1343	1	TS	GYROANG +3
0289	REF	105	LAST	341	21,6404	3	5501	0	CAF	ZERO
0290	REF	10	LAST	341	21,6405	6	1334	1	AD	INFLANG +2
0291	REF	4	LAST	341	21,6406	5	1342	0	TS	GYROANG +2
0292	REF	106	LAST	341	21,6407	3	5501	0	CAF	ZERO
0293	REF	1			21,6410	3	1450	1	XCH	THETAZ
0294	REF	11	LAST	341	21,6411	6	1337	1	AD	INFLANG +5
0295	REF	5	LAST	341	21,6412	5	1345	1	TS	GYROANG +5
0296	REF	107	LAST	341	21,6413	3	5501	0	CAF	ZERO
0297	REF	12	LAST	341	21,6414	6	1336	0	AD	INFLANG +4
0298	REF	6	LAST	341	21,6415	5	1344	0	TS	GYROANG +4
0299	REF	108	LAST	341	21,6416	3	5501	0	CAF	ZERO
0300	REF	13	LAST	341	21,6417	5	1332	1	TS	INFLANG
0301	REF	14	LAST	341	21,6420	5	1333	0	TS	INFLANG +1
0302	REF	15	LAST	341	21,6421	5	1334	1	TS	INFLANG +2
0303	REF	16	LAST	341	21,6422	5	1335	0	TS	INFLANG +3
0304	REF	17	LAST	341	21,6423	5	1336	0	TS	INFLANG +4
0305	REF	18	LAST	341	21,6424	5	1337	1	TS	INFLANG +5
0312	REF	2	LAST	335	21,6425	3	3532	0	CAF	NINE
0313	REF	3	LAST	340	21,6426	5	1321	0	TS	PRELTEMP
0314	REF	3	LAST	335	21,6427	0	2276	0	TC	PHASCHNG
0315					21,6430		02603	0	OCT	02603
0316					21,6431	2	0017	0	INHINT	SET UP TORQUING JOB
0317	REF	1			21,6432	3	2162	0	CAF	PRI027
0318	REF	12	LAST	293	21,6433	0	2052	1	TC	NOVAC
0319	REF	1			21,6434		42442	0	CADR	SPITGYRO
0320	REF	41	LAST	336	21,6435	0	2124	1	TC	ENDOFJOB
0321	REF	4	LAST	341	21,6436	5	1321	0	JUMPY TS	PRELTEMP
0322	REF	4	LAST	341	21,6437	0	2276	0	TC	PHASCHNG
0323					21,6440		02603	0	OCT	02603
0324	REF	42	LAST	341	21,6441	0	2124	1	TC	ENDOFJOB
0327	REF	1			21,6442	3	7030	0	SPITGYRO CAF	LGYROANG

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0328	REF	42	LAST	339	21,6443	0 5654 0	TC	BANKCALL
0329	REF	3	LAST	251	21,6444	31433 1	CADR	GYRODPNT
0330	REF	43	LAST	342	21,6445	0 5654 0	TC	BANKCALL
0331	REF	14	LAST	335	21,6446	30331 0	CADR	IMUSTALL
0332	REF	43	LAST	341	21,6447	0 2124 1	TC	ENDOFJOB
0333	REF	44	LAST	342	21,6450	0 2124 1	TC	ENDOFJOB

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P0334 VERTICAL ERECTION PROCEDURES.

0335	REF	2 LAST 334	21,6451	1 1320 0	NOGYROCM	CCS	GYROCSW	COUNT DOWN FOR 5 MIN OF VERTICAL ERECT.
0336	REF	1	21,6452	0 6456 0		TC	MORE	IF MORE TO COME.
0337	REF	11 LAST 340	21,6453	0 2362 1		TC	NEWMODE	IF NOT, GO INTO GYROCOMP. (MM 02)
0338			21,6454	00002 0		OCT	2	
0339			21,6455	0 6457 1		TC	+2	
0340	REF	3 LAST 343	21,6456	5 1320 1	MORE	TS	GYROCSW	
0341	REF	11 LAST 340	21,6457	0 4000 0	TJL	TC	INTPRET	
0342			21,6460	76776 0		ITC	0	
0343	REF	2 LAST 340	21,6461	02515 1			EARTHTRAT	
0344			21,6462	66775 1		DSU	1	
0345			21,6463	64742 1		DMP	DAD	
0346	REF	7 LAST 217	21,6464	01004 1			DELVY	
0347	REF	1	21,6465	01363 0			FILDELY	
0348	REF	1	21,6466	02765 1			VERECTC3	
0349	REF	2 LAST 343	21,6467	01363 0			FILDELY	
0350	REF	3 LAST 343	21,6470	33363 1		STORE	FILDELY	
0351			21,6471	53575 0		AXC,1	1	
0352			21,6472	52572 0		AXC,2	ITC	
0353			21,6473	00003 1			2	
0354			21,6474	00001 0			0	
0355	REF	1	21,6475	02661 1			VERECT	
0356			21,6476	66775 1		DSU	1	
0357			21,6477	64742 1		DMP	DAD	
0358	REF	5 LAST 217	21,6500	01006 0			DELVZ	
0359	REF	1	21,6501	01361 1			FILDELZ	
0360	REF	2 LAST 343	21,6502	02765 1			VERECTC3	
0361	REF	2 LAST 343	21,6503	01361 1			FILDELZ	
0362	REF	3 LAST 343	21,6504	33361 0		STORE	FILDELZ	
0363			21,6505	53574 1		AXC,1	2	
0364			21,6506	47433 0		NOLOD	COMP	
0365			21,6507	76776 0		ITC		
0366			21,6510	00001 0			0	
0367	REF	2 LAST 343	21,6511	02661 1			VERECT	
0368			21,6512	76776 0		ITC	0	
0369	REF	1	21,6513	02362 1			ENDOFPR	

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P0370 CALCULATION OF EARTH RATE

0371			21,6514	66775	1	EATHRAT	DSU	1	
0372			21,6515	63666	1		TSLT	DMPR	
0373	REF	4 LAST 340	21,6516	01465	1			PIPTIME	
0374	REF	4 LAST 340	21,6517	01371	0			PREVTIME	
0375			21,6520	00014	1			11D	
0376	REF	1	21,6521	03010	0			GOMEGA	
0377			21,6522	64775	0		DMP	1	SIN(LAMBDE).DT.LENGTH OMEGA + THETA X
0378			21,6523	63742	0		TSLT	DAD	
0379			21,6524	00001	0			0	
0380	REF	2 LAST 339	21,6525	00043	0			SINLAM	
0381			21,6526	00002	0			1	
0382	REF	2 LAST 340	21,6527	01453	1			THETAX	
0383	REF	3 LAST 344	21,6530	33453	0		STORE	THETAX	
0384			21,6531	64775	0		DMP	1	-COS(LAMBDA).DT.LENGTH OMEGA + THETA STH
0385			21,6532	63726	1		TSLT	BDSU	
0386			21,6533	77777	0			-	
0387	REF	2 LAST 339	21,6534	00045	0			COSLAM	
0388			21,6535	00002	0			1	
0389	REF	2 LAST 339	21,6536	01455	1			THETASTH	
0390	REF	3 LAST 344	21,6537	33455	0		STORE	THETASTH	
0391			21,6540	64775	0		DMP	1	COS(AZIMUTH). SOUTH COMPONENT
0392			21,6541	63776	1		TSLT		
0393	REF	4 LAST 344	21,6542	01455	1			THETASTH	TO P.D. LIST
0394	REF	2 LAST 339	21,6543	00005	1			COSAZ	
0395			21,6544	00002	0			1	
0396			21,6545	64774	1		DMP	2	Y COMPONENT = SIN(AZIMUTH).EAST COMP
0397			21,6546	63742	0		TSLT	DAD	+ COS(AZIMUTH). SOUTH
0398			21,6547	70776	0		DAD		
0399	REF	2 LAST 339	21,6550	01457	0			THETAE	COMP
0400	REF	2 LAST 339	21,6551	00003	1			SINAZ	
0401			21,6552	00002	0			1	
0402	REF	9 LAST 341	21,6553	01447	1			THETAY	
0403	REF	10 LAST 344	21,6554	33447	0		STORE	THETAY	
0404			21,6555	64775	0		DMP	1	SIN(AZIMUTH). SOUTH COMPONENT
0405			21,6556	63776	1		TSLT		
0406	REF	3 LAST 344	21,6557	00003	1			SINAZ	TO P.D. LIST
0407	REF	5 LAST 344	21,6560	01455	1			THETASTH	
0408			21,6561	00002	0			1	
0409			21,6562	64774	1		DMP	2	Z COMPONENT = COS(AZIMUTH).EAST COMP
0410			21,6563	63732	1		TSLT	DSU	
0411			21,6564	70776	0		DAD		
0412	REF	3 LAST 344	21,6565	00005	1			COSAZ	-SIN(AZIMUTH).SOUTH COMP

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0413	REF	3 LAST 344	21,6566	01457 0	THETA E
0414			21,6567	00002 0	1
0415			21,6570	77777 0	-
0416	REF	2 LAST 341	21,6571	01451 0	THETA Z
0417	REF	3 LAST 345	21,6572	33451 1	STORE THETA Z
0418			21,6573	40576 1	ITCQ 0

L PRELAUNCH ALIGNMENT PROGRAM

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P0419 COMPUTATION OF GYROCOMPASS COMMAND

0420			21,6574	45575 1	GYROCOM	ITA	1	
0421			21,6575	64716 0		DMP	TSLT	
0422	REF	3 LAST 311	21,6576	00052 0			S2	
0423	REF	6 LAST 343	21,6577	01006 0			DELVZ	
0424	REF	4 LAST 344	21,6600	00005 1			COSAZ	
0425			21,6601	00002 0			1	
0426			21,6602	64775 0		DMP	1	DELTA-V(EAST)= COS(AZ).DELTA-V(Z)
0427			21,6603	63742 0		TSLT	DAD	
0428	REF	8 LAST 343	21,6604	01004 1			DELVY	
0429	REF	4 LAST 344	21,6605	00003 1			SINAZ	
0430			21,6606	00002 0			1	
0431	REF	2 LAST 30	21,6607	33361 0		STORE	DELE	
0432			21,6610	53574 1		AXC,1	2	
0433			21,6611	52435 1		AXC,2	NOLOD	
0434			21,6612	47172 0		COMP	ITC	
0435			21,6613	00007 0			6	
0436			21,6614	00003 1			2	
0437	REF	3 LAST 343	21,6615	02661 1			VERECT	
0438			21,6616	64775 0		DMP	1	SIN(AZ).DELTA-V(Z)
0439			21,6617	63776 1		TSLT		
0440	REF	7 LAST 346	21,6620	01006 0			DELVZ	
0441	REF	5 LAST 346	21,6621	00003 1			SINAZ	
0442			21,6622	00002 0			1	
0443			21,6623	64775 0		DMP	1	DELTA-V(SOUTH)= COS(AZ).DELTA-V(Y)
0444			21,6624	63732 1		TSLT	DSU	
0445	REF	9 LAST 346	21,6625	01004 1			DELVY	
0446	REF	5 LAST 346	21,6626	00005 1			COSAZ	
0447			21,6627	00002 0			1	
0448	REF	2 LAST 30	21,6630	33363 1		STORE	DELS	
0449			21,6631	64776 0		DMP	0	
0450	REF	3 LAST 346	21,6632	01363 0			DELS	C1. DELTA-V(SOUTH) TO P.D. LIST
0451	REF	1	21,6633	02767 0			GYRCMC1	
0452			21,6634	64775 0		DMP	1	FILTER = C1. DELTA-V(SOUTH)
0453			21,6635	70776 0		DAD		+C2. FILTER
0454	REF	2 LAST 334	21,6636	01357 1			FILTER	
0455	REF	1	21,6637	02771 1			GYRCMC2	
0456	REF	3 LAST 346	21,6640	33357 0		STORE	FILTER	
0457			21,6641	47574 1		NOLOD	2	
0458			21,6642	64716 0		DMP	TSLT	
0459			21,6643	70776 0		DAD		
0460	REF	1	21,6644	02773 0			GYRCMC3	

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0461			21,6645	00010 0		7	
0462	REF	4 LAST 344	21,6646	01453 1		THETAX	
0463	REF	5 LAST 347	21,6647	33453 0	STORE	THETAX	
0464			21,6650	64775 0	DMP	1	EAST-TORQUING ANGLE = C4.FILTER
0465			21,6651	63776 1	TSLT		
0466	REF	4 LAST 346	21,6652	01363 0		DELS	
0467	REF	1	21,6653	02775 0		GYRCMC4	
0468			21,6654	00004 0		3	
0469	REF	4 LAST 345	21,6655	33457 1	STORE	THETAE	
0470			21,6656	44576 0	ITCI	0	
0471	REF	4 LAST 346	21,6657	00052 0		S2	

L PRELAUNCH ALIGNMENT PROGRAM

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P0472 VERTICAL ERECTION SUBROUTINE

R0473 VERECT - VERTICAL ERECTION ENTERED IN INT. MODE WITH
 R0474 SUBROUTINE C(X1)= 2 FOR C(MPAC)= DEL-V Y
 R0475 = 0 C(MPAC)=-DEL-V Z
 R0476 = 6 FOR C(MPAC)=-DEL-V E
 R0477 FOR THESE THREE CASES OUTPUT WILL BE
 R0478 THETA-Z
 R0479 THETA-Y
 R0480 THETA-S RESPECTIVELY.
 R0481 LOOP CONSTANTS ARE DETERMINED BY
 R0482 C(X2)= 0 NO GYROCOMPASSING
 R0483 2 GYROCOMPASSING

0484			21,6660	47576 0	VERECT	NOLOD	0	
0485			21,6661	32001 1		STORE	0	
0486			21,6662	47575 0		NOLOD	1	
0487			21,6663	70376 1		DAD*		
0488	REF	1	21,6664	02751 0		INT,1		COMPUTE INTEGRAL OF DEL-V = INT
0489	REF	2 LAST 348	21,6665	36751 1		STORE	INT,1	
0490			21,6666	45175 0		DMOVE	1	
0491			21,6667	64316 1		DMP*	TSLT	
0492			21,6670	00001 0			0	
0493	REF	1	21,6671	05732 1			VERECTC1,2	
0494			21,6672	00006 1			5	
0495			21,6673	64375 1		DMP*	1	
0496			21,6674	70342 0		DAD*	DAD	
0497	REF	3 LAST 348	21,6675	02751 0		INT,1		THETA = THETA + C1 DEL-V + C2 INT
0498	REF	1	21,6676	05742 0			VERECTC2,2	
0499	REF	11 LAST 344	21,6677	03115 1			THETAY,1	
0500	REF	12 LAST 348	21,6700	37115 0		STORE	THETAY,1	
0501			21,6701	40576 1		ITCQ	0	

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P0502 PRELAUNCH MANUAL REQUEST PROCESSOR.

0503	REF	4	LAST	337	21,6702	3	4501	1	STARTPL	CAF	PRI020	ENTER EXECUTIVE REQUEST ON START-UP.
0504	REF	10	LAST	337	21,6703	0	2046	1		TC	FINDVAC	
0505	REF	1			21,6704		42147	0		CADR	STARTPL2	
0506	REF	7	LAST	217	21,6705	0	5702	1		TC	SWRETURN	
0507	REF	3	LAST	102	21,6706	4	4513	0	PLSTCHK	CS	EIGHT	PRELAUNCH COMES HERE WHENEVER A PHASE
0508	REF	288	LAST	332	21,6707	6	0115	1		AD	MPAC	REFERENCE IS MADE TO SEE IF A MANUAL
0509	REF	298	LAST	337	21,6710	1	0000	0		CCS	A	REQUEST HAS BEEN ENTERED THROUGH MASTER
0510	REF	200	LAST	295	21,6711	0	0001	0		TC	Q	CONTROL. ALL SUCH PHASES ARE LESS THAN 8
0511					21,6712		24000	1	PLPRIO	OCT	24000	
0512					21,6713	0	6714	0		TC	+1	
0513	REF	289	LAST	349	21,6714	2	0115	0		INDEX	MPAC	SEE WHICH MANUAL MODE REQUESTED.
0514					21,6715	0	6715	1		TC	+0	
0515	REF	2	LAST	124	21,6716	0	6000	1		TC	TOP1	1 - INITIALIZATION 1.
0516	REF	1			21,6717	0	6100	0		TC	TOP2	2 - INITIALIZATION 2.
0517	REF	1			21,6720	0	7252	0		TC	OPTCHK	3 - DO OPTICAL CHECK
0518	REF	25	LAST	201	21,6721	1	0727	1	PLFINCHK	CCS	WASKSET	SEE IF IN FINE ALIGN.
0519	REF	1			21,6722	0	6726	1		TC	3CHECK	
0520	REF	6	LAST	335	21,6723	0	6746	1		TC	PRELEXIT	SYSTEM IN BAD SHAPE.
0521	REF	1			21,6724	0	6733	0		TC	DOPLCHNG	DO THE CHANGE ANYWAY.
0522	REF	7	LAST	349	21,6725	0	6746	1		TC	PRELEXIT	SYSTEM IN BAD SHAPE.
0523	REF	1			21,6726	6	6731	1	3CHECK	AD	-CCSFINE	
0524	REF	299	LAST	349	21,6727	1	0000	0		CCS	A	
0525	REF	3	LAST	349	21,6730	0	6000	1		TC	TOP1	
0526					21,6731		77730	0	-CCSFINE	OCT	-47	WASKSET IS 50 FOR FINE ALIGN.
0527	REF	4	LAST	349	21,6732	0	6000	1		TC	TOP1	
0528	REF	290	LAST	349	21,6733	2	0115	0	DOPLCHNG	INDEX	MPAC	
0529					21,6734	0	6732	1		TC	-2	
0530	REF	1			21,6735	0	6741	0		TC	DOPL14	
0531	REF	12	LAST	343	21,6736	0	2362	1	DOPL15	TC	NEWMODE	SET MAJOR MODE TO GYROCOMPASSING
0532					21,6737		00002	0		OCT	2	
0533	REF	1			21,6740	0	6344	1		TC	DOGYROC	
0534	REF	13	LAST	349	21,6741	0	2362	1	DOPL14	TC	NEWMODE	SET MAJOR MODE TO UNCONDITIONAL VERT-
0535					21,6742		00006	1		OCT	6	ICAL ERECTION
0536	REF	2	LAST	340	21,6743	0	6457	1		TC	TJL	

L PRELAUNCH ALIGNMENT PROGRAM

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P0537 PRELAUNCH GO-SEQUENCE PROCESSOR.

R0538 HAS BEEN DELETED. SEE GENERAL RESTARTS. ...DJL

0539 21,6744 00050 1 FINECODE OCT 50 FINE ALIGN AND COMPUTER CONTROL.

R0540 PRELAUNCH TERMINATION.

0541	REF	18	LAST	333	21,6745	0	3362	0	TC	FREEDSP	
0542	REF	44	LAST	342	21,6746	0	5654	0	PRELEXIT TC	BANKCALL	RETURN IMU TO MANUAL CONTROL.
0543	REF	1			21,6747		30241	0	CADR	IMUFINIS	
0544	REF	113	LAST	337	21,6750	4	4516	0	ENDJ3OUT CS	ONE	
0545	REF	4	LAST	339	21,6751	0	2312	0	TC	NEWPHASE	
0546					21,6752		00003	1	OCT	3	
0547	REF	45	LAST	342	21,6753	0	2124	1	TC	ENDOFJOB	

L PRELAUNCH ALIGNMENT PROGRAM

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P0548 PRELAUNCH BANK STORED CONSTANTS

Address	Label	Value	Unit	Description
0549		21,6754	24000 1	VERECTC1 2DEC 20. B-5 VERTICAL LOOP CONSTANTS
C0549		21,6755	00000 1	
0550		21,6756	02000 0	2DEC 2 B-5
C0550		21,6757	00000 1	
0551		21,6760	14631 0	VERECTC2 2DEC .4
C0551		21,6761	23146 0	
0552		21,6762	00101 1	2DEC .004
C0552		21,6763	21116 1	
0553		21,6764	03146 1	VERECTC3 2DEC .1
C0553		21,6765	14632 0	
0554		21,6766	03146 1	GYRCMC1 2DEC 0.1
C0554		21,6767	14632 0	
0555		21,6770	34631 1	GYRCMC2 2DEC 0.9
C0555		21,6771	23146 0	
0556		21,6772	56777 0	GYRCMC3 2DEC -68 B-7
C0556		21,6773	77777 0	
0557		21,6774	20000 0	GYRCMC4 2DEC 4 B-3
C0557		21,6775	00000 1	
0558		21,6776	03610 0	LABLAT 2DEC .117678252 LATITUDE OF IL-7
C0558		21,6777	01227 1	
0559		21,7000	10000 0	90DEGAZ 2DEC .25 90 DEG. FROM NORTH = EAST
C0559		21,7001	00000 1	
0560		21,7002	00062 0	PRELDT DEC .5 E 2 HALF SECOND PRELAUNCH CYCLE
0561	REF 2 LAST 337	21,7003	42270 1	WAKEPRAD CADR PRAWAKE WAKING ADDRESS FOR PRELAUNCH
0562		21,7004	00000 1	ZEROPR OCT 0 OUR OWN PERSONAL COPY OF ZERO
0564		21,7005	03711 0	LOMEGA 2DEC .12169524 EARTH RATE IN IRIG PULSES PER .01 SEC.
C0564		21,7006	33265 0	
0565		21,7007	37116 0	GOMEGA 2DEC 0.97356192 EARTH RATE IN IRIG PULSES/CS
C0565		21,7010	32652 1	
0566		21,7011	06200 0	PLPIPADT DEC 50 B+6
0567		21,7012	77746 1	-.25SC21 DEC -25
0568		21,7013	77715 1	NEG.5SEC DEC -50
0569		21,7014	00310 0	2SEC21 DEC 200
0570		21,7015	00000 1	DP2.5SEC 2DEC 250
C0570		21,7016	00372 1	
0571		21,7017	00060 1	BITS56 DEC 48
0572		21,7020	37116 0	SIDEDAYS 2DEC* .011605763 E-5B 23* FRACTION OF T2-T1 IN SIDEREAL DAY
C0572		21,7021	32666 0	
0573		21,7022	13644 0	LOCALUP 2DEC .738876298 B-1
C0573		21,7023	33772 0	
0574		21,7024	00000 1	2DEC .0 VECTOR AT TIME C(T2,T1) = 0
C0574		21,7025	00000 1	
0575		21,7026	12620 0	2DEC .673841098 B-1
C0575		21,7027	03315 0	

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0576	REF	7 LAST 341	21,7030	01340 1	LGYROANG	ADRES	GYROANG
0577			21,7031	00011 1	IX	DEC	9

L PRELAUNCH ALIGNMENT PROGRAM

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P0578 PRELAUNCH TERMINATION PHASE(AFTER G.R. SIGNAL)

0579	REF	12	LAST	343	21,7032	0	4000	0	PRELTER1	TC	INTPRET	
0580					21,7033	70776	0		DAD	0		
0581	REF	5	LAST	344	21,7034	01371	0				PREVTIME	
0582	REF	1			21,7035	03016	0				DP2.5SEC	
0583	REF	6	LAST	353	21,7036	33371	1		STORE		PREVTIME	
0584					21,7037	76776	0		ITC	0		
0585	REF	3	LAST	343	21,7040	02515	1			EARTHROT		CHANGED BY MR. FIXIT.
0586					21,7041	77576	0		EXIT	0		
0587	REF	109	LAST	341	21,7042	3	5501	0	CAF		ZERO	
0588	REF	8	LAST	352	21,7043	5	1340	1	TS		GYROANG	
0589	REF	9	LAST	353	21,7044	5	1342	0	TS		GYROANG +2	
0590	REF	10	LAST	353	21,7045	5	1344	0	TS		GYROANG +4	
05902	REF	6	LAST	347	21,7046	3	1452	0	XCH		THETAX	
05903	REF	11	LAST	353	21,7047	5	1341	0	TS		GYROANG +1	
05904	REF	13	LAST	348	21,7050	3	1446	0	XCH		THETAY	
05905	REF	12	LAST	353	21,7051	5	1343	1	TS		GYROANG +3	
05906	REF	4	LAST	345	21,7052	3	1450	1	XCH		THETAZ	
05907	REF	13	LAST	353	21,7053	5	1345	1	TS		GYROANG +5	
0591					21,7054	2	0017	0	INHINT			
0592	REF	1			21,7055	3	2164	0	CAF		PRI031	CHANGED BY MR. FIXIT.
0593	REF	13	LAST	341	21,7056	0	2052	1	TC		NOVAC	
0594	REF	2	LAST	341	21,7057	42442	0		CADR		SPITGYRO	
0595					21,7060	2	0016	1	RELINT			
0596	REF	14	LAST	349	21,7061	0	2362	1	TC		NEWMODE	
0597					21,7062	00004	0		OCT	04		INERTIAL REFERENCE.
0598	REF	13	LAST	353	21,7063	0	4000	0	TC		INTPRET	
0599					21,7064	70776	0		DAD	0		FORM TIME SINCE LAUNCH VECTOR IN
0600	REF	5	LAST	262	21,7065	01074	0				DTEPOCH	INERTIAL Z-X PLANE
0601	REF	3	LAST	337	21,7066	01467	0				TIME2GR	
0602	REF	1			21,7067	33145	1		STORE		DTEAROT	
0603					21,7070	76776	0		ITC	0		BRANCH TO FORCE WT TO LESS THAN 1 REV
0604	REF	1			21,7071	13463	1			EARTHROT2		
0605					21,7072	57176	0		SIN	0		FORM INERTIAL Z-X PLANE LOCAL VERTICAL
0606	REF	4	LAST	339	21,7073	01315	1			LATITUDE		

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0607			21,7074	45176 0	DMOVE	0	
0608	REF	1	21,7075	05174 0		ZERODP	
0609			21,7076	55175 1	COS	1	
0610			21,7077	41176 1	VDEF		
0611	REF	5 LAST 353	21,7100	01315 1		LATITUDE	
0612	REF	4 LAST 13	21,7101	32041 0	STORE	VAC	
0613			21,7102	43576 1	TEST	0	TEST IF BIT IS ON. IF NOT SET IT ON
0614	REF	1	21,7103	00006 1		NBSMBIT	
0615	REF	1	21,7104	03167 1		NBITON	
0616			21,7105	75575 1	ROTXY	AXT,1	1
0617			21,7106	74572 1		AXT,2	ITC
0618			21,7107	00003 1			2
0619			21,7110	00005 1			4
0620	REF	1	21,7111	04566 0		ACCURROT	
0621			21,7112	47576 0	NOLOD	0	
0622	REF	5 LAST 330	21,7113	33052 0	STORE	REFSMMAT	PRESENT LOCAL VERTICAL VECTOR IS X-AXIS
0623			21,7114	45176 0	DMOVE	0	
0624	REF	2 LAST 354	21,7115	05174 0		ZERODP	
0625			21,7116	45176 0	DMOVE	0	
0626	REF	5 LAST 354	21,7117	00041 1		VAC	
0627			21,7120	47175 1	COMP	1	FORM UNIT EAST VECTOR AT GRR
0628			21,7121	41153 0	VDEF	UNIT	
0629	REF	6 LAST 354	21,7122	00043 0		VAC +2	
0630			21,7123	47575 0	NOLOD	1	FORM UNIT SOUTH VECTOR
0631			21,7124	41753 0	VXV	UNIT	
0632	REF	6 LAST 354	21,7125	01052 1		REFSMMAT	
0633			21,7126	66776 1	DSU	0	FORM AZIMUTH SOUTH OF EAST AT GRR
0634	REF	3 LAST 339	21,7127	01317 0		AZIMUTH	
0635	REF	2 LAST 339	21,7130	03001 0		90DEGAZ	
0636			21,7131	32037 1	STORE	30D	
0637			21,7132	47575 0	NOLOD	1	
0638			21,7133	57166 1	SIN	VXSC	
0639	REF	7 LAST 354	21,7134	33066 1	STORE	REFSMMAT +12D	(TEMPORARY STORAGE)
0640			21,7135	55174 0	COS	2	FORM SM Z-AXIS
0641			21,7136	75642 0	VXSC	VAD	
0642			21,7137	73176 0	UNIT		
0643			21,7140	00037 0		30D	
0644			21,7141	77777 0		-	
0645	REF	8 LAST 354	21,7142	01066 0		REFSMMAT +12D	

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0646	REF	9 LAST 354	21,7143	33066 1	STORE	REFSMMAT +12D	
0647			21,7144	47575 0	NOLOD	1	FORM SM Y-AXIS BY CROSS PRODUCT
0648			21,7145	41753 0	VXV	UNIT	
0649	REF	10 LAST 355	21,7146	01052 1		REFSMMAT	
0650	REF	11 LAST 355	21,7147	33060 1	STORE	REFSMMAT +6	
0651			21,7150	41775 1	VXV	1	INITIALISE VN, GRAVITY GIVEN RN, UNITW
0652			21,7151	75776 0	VX5C		
0653	REF	1	21,7152	01044 0		UNITW	
0654	REF	7 LAST 158	21,7153	00766 0		RN	SCALED AT 2(+25) METERS
0655	REF	1	21,7154	03173 1		WIE	
0656	REF	7 LAST 158	21,7155	32774 1	STORE	VN	SCALED AT 2(+7)M/CS
0657			21,7156	75175 0	VMOVE	1	
0658			21,7157	76776 0	ITC		
0659	REF	8 LAST 355	21,7160	00766 0		RN	
0660	REF	1	21,7161	21643 0		CALCGRAV	
0661			21,7162	77576 0	EXIT	0	
06612	REF	2 LAST 353	21,7163	3 2164 0	CAF	PRI031	GUESS WHAT WE'RE DOING
06614	REF	5 LAST 335	21,7164	5 0755 0	TS	1/PIPADT	GIVE UP WOULD YOU BELIEVE 2 SECONDS
0662	REF	1	21,7165	0 6750 0	TC	ENDJ3OUT	TERMINATE PRELAUNCH. (PHASE = INACTIVE.)
0663			21,7166	42575 0	NBITON	SWITCH 1	
0664			21,7167	76776 0	ITC		
0665	REF	2 LAST 354	21,7170	00006 1		NBSMBIT	
0666	REF	1	21,7171	03106 0		ROTX	
0667			21,7172	14167 1	WIE	2DEC*	7.29211505 E-7 B+19* RAD/CS SCALED AT 2(-19)
C0667			21,7173	34104 0			

L PRELAUNCH ALIGNMENT PROGRAM

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Line	REF	201	LAST	349	21,7174	3	0001	0	PRLSAVE	XCH	Q	SAVE CURRENT VARIABLES FOR RESTARTS
0668	REF	201	LAST	349	21,7174	3	0001	0	PRLSAVE	XCH	Q	
0669	REF	291	LAST	349	21,7175	5	0116	1		TS	MPAC +1	
0670	REF	1			21,7176	3	3535	1		CAF	THIRTEEN	
0671	REF	292	LAST	356	21,7177	5	0115	1	AGAIN1	TS	MPAC	
0672	REF	293	LAST	356	21,7200	2	0115	0		INDEX	MPAC	
0673	REF	4	LAST	346	21,7201	4	1356	1		CS	FILTER	
0674	REF	294	LAST	356	21,7202	2	0115	0		INDEX	MPAC	
0675	REF	1			21,7203	5	1243	0		TS	PTEMP	
0676	REF	295	LAST	356	21,7204	1	0115	0		CCS	MPAC	
0677	REF	1			21,7205	0	7177	1		TC	AGAIN1	
0678	REF	2	LAST	334	21,7206	3	3533	1		CAF	ELEVEN	
0679	REF	296	LAST	356	21,7207	5	0115	1	AGAIN2	TS	MPAC	
0680	REF	297	LAST	356	21,7210	2	0115	0		INDEX	MPAC	
0681	REF	14	LAST	353	21,7211	4	1446	1		CS	THETAY	
0682	REF	298	LAST	356	21,7212	2	0115	0		INDEX	MPAC	
0683	REF	2	LAST	356	21,7213	5	1261	0		TS	PTEMP +14D	
0684	REF	299	LAST	356	21,7214	1	0115	0		CCS	MPAC	
0685	REF	1			21,7215	0	7207	0		TC	AGAIN2	
0686	REF	5	LAST	341	21,7216	4	1321	1		CS	PRELTEMP	
0687	REF	3	LAST	356	21,7217	5	1275	0		TS	PTEMP +26D	
0688	REF	4	LAST	343	21,7220	4	1320	0		CS	GYROCSW	
0689	REF	4	LAST	356	21,7221	5	1276	0		TS	PTEMP +27D	
0690	REF	300	LAST	356	21,7222	0	0116	1		TC	MPAC +1	
0691	REF	202	LAST	356	21,7223	3	0001	0	PRLRSTOR	XCH	Q	RESTORE OLD VALUES OF VARIABLES
0692	REF	301	LAST	356	21,7224	5	0116	1		TS	MPAC +1	
0693	REF	2	LAST	356	21,7225	3	3535	1		CAF	THIRTEEN	
0694	REF	302	LAST	356	21,7226	5	0115	1	AGAIN3	TS	MPAC	
0695	REF	303	LAST	356	21,7227	2	0115	0		INDEX	MPAC	
0696	REF	5	LAST	356	21,7230	4	1243	1		CS	PTEMP	
0697	REF	304	LAST	356	21,7231	2	0115	0		INDEX	MPAC	
0698	REF	5	LAST	356	21,7232	5	1356	0		TS	FILTER	
0699	REF	305	LAST	356	21,7233	1	0115	0		CCS	MPAC	
0700	REF	1			21,7234	0	7226	0		TC	AGAIN3	
0701	REF	3	LAST	356	21,7235	3	3533	1		CAF	ELEVEN	
0702	REF	306	LAST	356	21,7236	5	0115	1	AGAIN4	TS	MPAC	
0703	REF	307	LAST	356	21,7237	2	0115	0		INDEX	MPAC	
0704	REF	6	LAST	356	21,7240	4	1261	1		CS	PTEMP +14D	
0705	REF	308	LAST	356	21,7241	2	0115	0		INDEX	MPAC	
0706	REF	15	LAST	356	21,7242	5	1446	0		TS	THETAY	
0707	REF	309	LAST	356	21,7243	1	0115	0		CCS	MPAC	
0708	REF	1			21,7244	0	7236	1		TC	AGAIN4	
0709	REF	7	LAST	356	21,7245	4	1275	1		CS	PTEMP +26D	

L PRELAUNCH ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 26

0710	REF	6	LAST	356	21,7246	5	1321	0	TS	PRELTEMP
0711	REF	8	LAST	356	21,7247	4	1276	1	CS	PTEMP +27D
0712	REF	5	LAST	356	21,7250	5	1320	1	TS	GYROCSW
0713	REF	310	LAST	356	21,7251	0	0116	1	TC	MPAC +1

L PRELAUNCH ALIGNMENT PROGRAM

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P0714 PRELAUNCH CHECK PROCEDURE (USES THE Z-NORTH SYSTEM OF AXES)

0715				21,7252	2 0017 0	OPTCHK	INHINT	
0716	REF	2 LAST 124		21,7253	3 2150 1		CAF	PRI014
0717	REF	11 LAST 349		21,7254	0 2046 1		TC	FINDVAC
0718	REF	2 LAST 124		21,7255	43262 0		CADR	CHKOPT
								CALL WITH PRIORITY OF TWENTY
0719	REF	10 LAST 265		21,7256	3 4514 0		CAF	BIT3
0720	REF	311 LAST 357		21,7257	5 0115 1		TS	MPAC
0722	REF	1		21,7260	0 6721 0		TC	PLFINCHK
0723	REF	1		21,7261	0 6354 0		TC	DOGYROC2
0724	REF	15 LAST 332		21,7262	0 3302 0	CHKOPT	TC	GRABDSP
0725	REF	15 LAST 332		21,7263	0 3310 0		TC	PREGBSY
0726	REF	15 LAST 353		21,7264	0 2362 1		TC	NEWMODE
0727				21,7265	00003 1		OCT	03
0728	REF	110 LAST 353		21,7266	3 5501 0		CAF	ZERO
0729	REF	1		21,7267	5 1400 1		TS	STARS
0730	REF	114 LAST 350		21,7270	6 4516 1		AD	ONE
0731	REF	18 LAST 333		21,7271	5 0620 0		TS	DSPTM1 +2
0732	REF	1		21,7272	3 7540 1		CAF	V06N30P
0733	REF	27 LAST 294		21,7273	0 3100 0		TC	NVSUB
0734	REF	24 LAST 294		21,7274	0 3315 0		TC	PRENVBSY
0735	REF	2 LAST 358		21,7275	2 1400 0		INDEX	STARS
0736	REF	1		21,7276	3 1346 1		XCH	TAZ
0737	REF	19 LAST 358		21,7277	5 0616 0		TS	DSPTM1
0738	REF	3 LAST 358		21,7300	2 1400 0		INDEX	STARS
0739	REF	1		21,7301	3 1350 0		XCH	TEL
0740	REF	20 LAST 358		21,7302	5 0617 1		TS	DSPTM1 +1
0741	REF	3 LAST 333		21,7303	0 7542 0		TC	CHECKNV
0742				21,7304	00661 0		OCT	00661
0743	REF	1		21,7305	0 7441 1		TC	CHEXIT
0744	REF	21 LAST 358		21,7306	3 0616 0		XCH	DSPTM1
0745	REF	4 LAST 358		21,7307	2 1400 0		INDEX	STARS
0746	REF	2 LAST 358		21,7310	5 1346 1		TS	TAZ
0747	REF	22 LAST 358		21,7311	3 0617 1		XCH	DSPTM1 +1
0748	REF	5 LAST 358		21,7312	2 1400 0		INDEX	STARS
0749	REF	2 LAST 358		21,7313	5 1350 0		TS	TEL
0750	REF	6 LAST 358		21,7314	1 1400 0		CCS	STARS
0751				21,7315	0 7320 1		TC	+3
0752	REF	115 LAST 358		21,7316	3 4516 1		CAF	ONE
0753	REF	3 LAST 358		21,7317	0 7267 0		TC	CHKOPT +5
0754	REF	23 LAST 358		21,7320	5 0620 0		TS	DSPTM1 +2

L PRELAUNCH ALIGNMENT PROGRAM

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0755	REF	46	LAST	337	21,7321	3 5503	1	CAF	TWO	
0756	REF	24	LAST	358	21,7322	5 0617	1	TS	DSPTM1 +1	
0757	REF	116	LAST	358	21,7323	3 4516	1	CAF	ONE	
0758	REF	25	LAST	359	21,7324	5 0616	0	TS	DSPTM1	SETS UP STAR NUMBER DISPLAY
0759	REF	2	LAST	358	21,7325	3 7540	1	CAF	V06N30P	
0760	REF	28	LAST	358	21,7326	0 3100	0	TC	NVSUB	
0761	REF	25	LAST	358	21,7327	0 3315	0	TC	PRENVBSY	
0762	REF	47	LAST	359	21,7330	3 5503	1	CAF	TWO	
0763	REF	45	LAST	350	21,7331	0 5654	0	TC	BANKCALL	
0764	REF	2	LAST	210	21,7332	30406	0	CADR	SXTMARK	
0765	REF	46	LAST	359	21,7333	0 5654	0	TC	BANKCALL	
0766	REF	3	LAST	249	21,7334	30327	1	CADR	OPTSTALL	
0767	REF	2	LAST	358	21,7335	0 7441	1	TC	CHEXIT	
0768	REF	14	LAST	353	21,7336	0 4000	0	TC	INTPRET	
0769					21,7337	76776	0	ITC	0	
0770	REF	1			21,7340	03475	1		PROCTARG	
0771					21,7341	76776	0	ITC	0	
0772	REF	2	LAST	333	21,7342	03446	1		MAKEXSM	COMPUTE DESIRED SM ORIENTAYION IN REC
0773					21,7343	52775	0	MXV	1	
0774					21,7344	44776	1	VSLT		
0775	REF	2	LAST	30	21,7345	01403	1		TARGET1	
0776	REF	1			21,7346	01425	0		XSM	
0777					21,7347	00002	0		1	
0778	REF	1			21,7350	33403	0	STORE	STARAD	
0779					21,7351	52775	0	MXV	1	
0780					21,7352	44776	1	VSLT		
0781	REF	3	LAST	359	21,7353	01411	1		TARGET1 +6	
0782	REF	2	LAST	359	21,7354	01425	0		XSM	
0783					21,7355	00002	0		1	
0784	REF	2	LAST	359	21,7356	33411	0	STORE	STARAD +6	
0785					21,7357	71574	1	LXC,1	2	
0786					21,7360	74471	0	AXT,2	XSU,2	
0787					21,7361	66572	1	SXA,2	ITC	
0788	REF	24	LAST	249	21,7362	00736	0		MARKSTAT	
0789					21,7363	00003	1		2	
0790	REF	5	LAST	314	21,7364	00047	1		X1	
0791	REF	6	LAST	324	21,7365	00051	0		S1	
0792	REF	1			21,7366	04733	1		SXTNB	
0793					21,7367	76776	0	ITC	0	
0794	REF	1			21,7370	04524	0		NBSM	
0795					21,7371	75176	0	VMOVE	0	
0796	REF	1			21,7372	00041	1		STARM	
0797	REF	1			21,7373	33375	0	STORE	VECTEM	

L PRELAUNCH ALIGNMENT PROGRAM

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0798			21,7374	71574 1	LXC,1	2	
0799			21,7375	63561 0	INCR,1	AXT,2	
0800			21,7376	56531 0	XSJ,2	SXA,2	
0801	REF	25 LAST 359	21,7377	00736 0		MARKSTAT	
0802			21,7400	77771 0	-	7	
0803			21,7401	00003 1		2	
0804	REF	6 LAST 359	21,7402	00047 1		X1	
0805	REF	7 LAST 359	21,7403	00051 0		S1	
0806			21,7404	76776 0	ITC	0	
0807	REF	2 LAST 359	21,7405	04733 1		SXTNB	
0808			21,7406	76776 0	ITC	0	
0809	REF	2 LAST 359	21,7407	04524 0		NBSM	
0810			21,7410	75176 0	VMOVE	0	
0811	REF	2 LAST 359	21,7411	00041 1		STARM	
0812			21,7412	32015 1	STORE	12D	
0813			21,7413	75176 0	VMOVE	0	
0814	REF	2 LAST 359	21,7414	01375 1		VECTEM	
0815			21,7415	32007 1	STORE	6	TO AVOID ERASABLE BIND
0816			21,7416	76776 0	ITC	0	FIND DESIRED SM IN PRESENT SM
0817	REF	1	21,7417	04761 0		AXISGEN	
0818			21,7420	76776 0	ITC	0	CALCULATE REQUIRED PULSE TORQUE IN GYROD
0819	REF	1	21,7421	04353 0		CALCGTA	
0820			21,7422	45776 0	VSRT	0	
0821	REF	2 LAST 251	21,7423	01521 0		OGC	
0822			21,7424	00011 1		8D	
0823	REF	3 LAST 360	21,7425	33521 1	STORE	OGC	CHANGE UNITS FROM 2PI TO GYRO PULSES
0824			21,7426	77576 0	EXIT	0	
0825	REF	47 LAST 359	21,7427	0 5654 0	TC	BANKCALL	
0826	REF	1	21,7430	30453 0	CADR	MKRELEAS	
0827	REF	4 LAST 358	21,7431	0 7542 0	TC	CHECKNV	
0828			21,7432	00667 0	OCT	00667	
0829	REF	3 LAST 359	21,7433	0 7441 1	TC	CHEXIT	
0830	REF	15 LAST 359	21,7434	0 4000 0	TC	INTPRET	
0831			21,7435	75176 0	VMOVE	0	
0832	REF	4 LAST 360	21,7436	01521 0		OGC	GETS SUMMED INTO PRELAUNCH
0833	REF	19 LAST 341	21,7437	33333 1	STORE	INFLANG	
0834			21,7440	77576 0	EXIT	0	

L PRELAUNCH ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 30

0837	REF	19	LAST	350	21,7441	0	3362	0	CHEXIT	TC	FREEDSP
0838	REF	16	LAST	358	21,7442	0	2362	1		TC	NEWMODE
0839					21,7443		00002	0		OCT	02
0840	REF	46	LAST	350	21,7444	0	2124	1		TC	ENDOFJOB

L PRELAUNCH ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 31

P0841 SUBROUTINE TO COMPUTE DESIRED SM AXES IN REC

0842				21,7445	77576 0	MAKEXSM	EXIT	0	
0843	REF	1		21,7446	3 7541 0		CAF	XVII	
0844	REF	107	LAST 241	21,7447	5 0077 1		TS	BUF	
0845	REF	111	LAST 358	21,7450	3 5501 0		CAF	ZERO	ZERO ALL OF XSM
0846	REF	108	LAST 362	21,7451	2 0077 0		INDEX	BUF	
0847	REF	3	LAST 359	21,7452	5 1424 1		TS	XSM	
0848	REF	109	LAST 362	21,7453	1 0077 0		CCS	BUF	
0849	REF	3	LAST 359	21,7454	0 7447 1		TC	MAKEXSM +2	
0850	REF	6	LAST 96	21,7455	3 4522 0		CAF	HALF	
0851	REF	4	LAST 362	21,7456	5 1424 1		TS	XSM	HALF UNIT MATRIX IS COMPUTED
0852	REF	16	LAST 360	21,7457	0 4000 0		TC	INTPRET	
0853				21,7460	55176 1		CDS	0	
0854	REF	4	LAST 354	21,7461	01317 0			AZIMUTH	
0855	REF	5	LAST 362	21,7462	33435 0		STORE	XSM +8D	
0856				21,7463	47576 0		NOLDD	0	
0857	REF	6	LAST 362	21,7464	33445 1		STORE	XSM +16D	
0858				21,7465	57176 0		SIN	0	
0859	REF	5	LAST 362	21,7466	01317 0			AZIMUTH	
0860	REF	7	LAST 362	21,7467	33443 1		STORE	XSM +14D	
0861				21,7470	47176 1		COMP	0	
0862	REF	8	LAST 362	21,7471	01443 0			XSM +14D	
0863	REF	9	LAST 362	21,7472	33437 1		STORE	XSM +10D	
0864				21,7473	40576 1		ITCQ	0	

L PRELAUNCH ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 32

P0865 ROUTINE TO CONVERT TARGET AZIMUTH AND ELEVATIONS TO VECTORS

0866			21,7474	75575 1	PROCTARG	AXT,1	1	
0867			21,7475	74461 1		AXT,2	AST,2	
0868			21,7476	00002 0			1	
0869			21,7477	00015 0			12D	
0870			21,7500	00007 0			6	
0871			21,7501	42175 1	PROC1	SMOVE*	1	
0872			21,7502	56776 1		TSRT		
0873	REF	3 LAST 358	21,7503	02723 0			TEL +1,1	
0874			21,7504	00003 1			2	
0875			21,7505	32001 1		STORE	0	
0876			21,7506	57176 0		SIN	0	
0877			21,7507	00001 0			0	
0878	REF	4 LAST 359	21,7510	37036 0		STORE	TARGET1 +12D,2	
0879			21,7511	55176 1		COS	0	
0880			21,7512	00001 0			0	PUSH DOWN THE COSINE OF ELEVATION
0881			21,7513	42175 1		SMOVE*	1	
0882			21,7514	76576 1		RTB		
0883	REF	3 LAST 358	21,7515	02717 1			TAZ +1,1	
0884	REF	1	21,7516	20304 1			CDULOGIC	
0885			21,7517	32003 0		STORE	2	THEN Y=0.5SIN(AZ)COS(EL)
0886			21,7520	57175 0		SIN	1	
0887			21,7521	64716 0		DMP	TSLT	
0888			21,7522	00003 1			2	
0889			21,7523	00001 0			0	
0890			21,7524	00002 0			1	
0891	REF	5 LAST 363	21,7525	37042 0		STORE	TARGET1 +14D,2	
0892			21,7526	55175 1		COS	1	
0893			21,7527	64716 0		DMP	TSLT	
0894			21,7530	00003 1			2	
0895			21,7531	77777 0			-	
0896			21,7532	00002 0			1	
0897	REF	6 LAST 363	21,7533	37046 1		STORE	TARGET1 +16D,2	
0898			21,7534	75575 1		AXT,1	1	
0899			21,7535	50401 1		TIX,2	ITCQ	
0900			21,7536	00001 0			0	
0901	REF	1	21,7537	03502 0			PROC1	

L PRELAUNCH ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 33

P0902 ROUTINE TO ROTATE COORDINATE SYSTEM BY EARTH RATE TIMES TIME

ON

0904	21,7540	00630 1	V06N30P	OCTAL	00630
0905	21,7541	00021 1	XVII	DEC	17

L PRELAUNCH ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 34

P0906 ROUTINE TO DISPLAY STORED DATA FOR CHECKING AND MODIFICATION, VERB NOUN
R0907 IS STORED AT L +1, RETURN IS TO L +2 FOR TERMINATE, L +3 FOR GOOD DATA OR PROCEED

0909	REF	203	LAST	356	21,7542	3	0001	0	CHECKNV	XCH	Q
0910	REF	1			21,7543	5	1354	1		TS	CHKNVTEM
0911	REF	2	LAST	365	21,7544	2	1354	0		INDEX	CHKNVTEM
0912	REF	300	LAST	349	21,7545	3	0000	1		XCH	A
0913	REF	29	LAST	359	21,7546	0	3100	0		TC	NVSUB
0914	REF	1			21,7547	0	7562	1		TC	CHECKNV1
0915	REF	48	LAST	360	21,7550	0	5654	0		TC	BANKCALL
0916	REF	4	LAST	278	21,7551		14000	1		CADR	FLASHON
0917	REF	18	LAST	289	21,7552	0	3136	0		TC	ENDIDLE
0918					21,7553	0	7556	0		TC	+3
0919					21,7554	0	7560	0		TC	+4
0920	REF	5	LAST	360	21,7555	0	7544	0		TC	CHECKNV +2
0921	REF	3	LAST	365	21,7556	2	1354	0		INDEX	CHKNVTEM
0922	REF	204	LAST	365	21,7557	0	0001	0		TC	Q
0923	REF	4	LAST	365	21,7560	2	1354	0		INDEX	CHKNVTEM
0924	REF	1			21,7561	0	0002	0		TC	Z
0925	REF	1			21,7562	3	7564	1	CHECKNV1	CAF	CHECKNV2
0926	REF	3	LAST	278	21,7563	0	3320	0		TC	NVSUBUSY
0927	REF	6	LAST	365	21,7564		43544	0	CHECKNV2	CADR	CHECKNV +2

L INFLIGHT ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 1

0001				22,6000		SETLOC 44000		
0002	REF 10	LAST 288	22,6000	3 4475 0	SWAYSTAT	CAF	SIX	PROGRAM START AND INITIAL CONDITIONS
0003	REF 1		22,6001	5 1100 1		TS	DTCOUNT	SET DTCOUNT = 6
0004	REF 2	LAST 366	22,6002	5 1101 0		TS	DTCOUNT +1	
0005	REF 117	LAST 359	22,6003	3 4516 1		CAF	ONE	
0006	REF 1		22,6004	5 1102 0		TS	SWAYPULS	SET FIRST PIPA PULSE = +1
0007	REF 2	LAST 366	22,6005	5 1103 1		TS	SWAYPULS +1	
0008	REF 118	LAST 366	22,6006	3 4516 1		CAF	ONE	
0009	REF 47	LAST 338	22,6007	0 2173 0		TC	WAITLIST	
0010	REF 1		22,6010	44024 1		CADR	SWAYROTY	
0011	REF 119	LAST 366	22,6011	3 4516 1		CAF	ONE	
0012	REF 1		22,6012	6 1104 0		AD	PHAZING	
0013	REF 48	LAST 366	22,6013	0 2173 0		TC	WAITLIST	
0014	REF 1		22,6014	44017 1		CADR	SWAYROTZ	
0015			22,6015	2 0016 1		RELINT		
0016	REF 47	LAST 361	22,6016	0 2124 1		TC	ENDOFJOB	
0017	REF 52	LAST 282	22,6017	3 0003 1	SWAYROTZ	XCH	LP	STORE LP IN LPRUPT
0018	REF 17	LAST 255	22,6020	3 0032 0		XCH	LPRUPT	
0019	REF 120	LAST 366	22,6021	3 4516 1		CAF	ONE	SET INDEX PIPSLECT FOR SELECTION OF
0020	REF 1		22,6022	5 1111 1		TS	PIPSLECT	PIPA TO BE INCREMENTED
0021	REF 2	LAST 366	22,6023	0 6030 1		TC	SWAYROTY +4	
0022	REF 53	LAST 366	22,6024	3 0003 1	SWAYROTY	XCH	LP	
0023	REF 18	LAST 366	22,6025	3 0032 0		XCH	LPRUPT	
0024	REF 112	LAST 362	22,6026	3 5501 0		CAF	ZERO	
0025	REF 2	LAST 366	22,6027	5 1111 1		TS	PIPSLECT	
0026	REF 113	LAST 366	22,6030	4 5501 1		CS	ZERO	
0027	REF 3	LAST 366	22,6031	2 1111 0		INDEX	PIPSLECT	
0028	REF 2	LAST 335	22,6032	3 0045 0		XCH	PIPAY	
0029	REF 4	LAST 366	22,6033	2 1111 0		INDEX	PIPSLECT	
0030	REF 3	LAST 366	22,6034	6 1102 0		AD	SWAYPULS	
0031	REF 5	LAST 366	22,6035	2 1111 0		INDEX	PIPSLECT	
0032	REF 3	LAST 366	22,6036	3 0045 0		XCH	PIPAY	
0033	REF 301	LAST 365	22,6037	1 0000 0		CCS	A	
0034	REF 121	LAST 366	22,6040	6 4516 1		AD	ONE	INCREMENT PIPA COUNTER IF PULSE
0035	REF 1		22,6041	0 6045 0		TC	ADDINC +1	
0036	REF 2	LAST 366	22,6042	0 6044 1		TC	ADDINC	
0037	REF 1		22,6043	0 6051 0		TC	ENDCHEC	
0038	REF 122	LAST 366	22,6044	4 4516 0	ADDINC	CS	ONE	
0039	REF 6	LAST 366	22,6045	2 1111 0		INDEX	PIPSLECT	
0040	REF 4	LAST 366	22,6046	6 0045 0		AD	PIPAY	
0041	REF 7	LAST 366	22,6047	2 1111 0		INDEX	PIPSLECT	

L INFLIGHT ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 2

0042	REF	5 LAST 366	22,6050	3 0045 0		XCH	PIPAY	
0043	REF	1	22,6051	1 1105 0	ENDCHEC	CCS	ENDSROT	IF ENDSROT = +1 EXIT PROGRAM
0044	REF	1	22,6052	0 6055 1		TC	CDTTHREE	WHEN DTCOUNT = 6
0045	REF	1	22,6053	0 6065 1		TC	TIMCALC	
0046	REF	2 LAST 367	22,6054	0 6055 1		TC	CDTTHREE	
0047	REF	11 LAST 366	22,6055	4 4475 1	CDTTHREE	CS	SIX	
0048	REF	8 LAST 366	22,6056	2 1111 0		INDEX	PIPSLECT	
0049	REF	3 LAST 366	22,6057	6 1100 1		AD	DTCOUNT	
0050	REF	302 LAST 366	22,6060	1 0000 0		CCS	A	
0051	REF	2 LAST 367	22,6061	0 6065 1		TC	TIMCALC	EXIT ON DTCOUNT = 6
0052	REF	1	22,6062	0 6124 0		TC	ENDSWAY	
0053	REF	3 LAST 367	22,6063	0 6065 1		TC	TIMCALC	
0054	REF	2 LAST 367	22,6064	0 6124 0		TC	ENDSWAY	
0055	REF	9 LAST 367	22,6065	2 1111 0	TIMCALC	INDEX	PIPSLECT	
0056	REF	4 LAST 367	22,6066	1 1100 0		CCS	DTCOUNT	
0057	REF	1	22,6067	0 6100 0		TC	DIMCOUNT	ACC NOW CONTAINS DTCOUNT - 1
0058	REF	1	22,6070	0 6073 0		TC	ALTPULSS	IF DTCOUNT NORZ CHANGE
0059	REF	2 LAST 367	22,6071	0 6073 0		TC	ALTPULSS	SIGN OF SWAYPULSE
0060			22,6072	3 0000 1		NOOP		
0061	REF	10 LAST 367	22,6073	2 1111 0	ALTPULSS	INDEX	PIPSLECT	
0062	REF	4 LAST 366	22,6074	4 1102 1		CS	SWAYPULS	
0063	REF	11 LAST 367	22,6075	2 1111 0		INDEX	PIPSLECT	
0064	REF	5 LAST 367	22,6076	5 1102 0		TS	SWAYPULS	
0065	REF	3 LAST 356	22,6077	3 3535 1		CAF	THIRTEEN	AND RESTART DTCOUNT AT 13
0066	REF	12 LAST 367	22,6100	2 1111 0	DIMCOUNT	INDEX	PIPSLECT	
0067	REF	5 LAST 367	22,6101	5 1100 1		TS	DTCOUNT	DTCOUNT NOW DIMINISHED BY ONE
A0068								OR RESET TO 13
0069	REF	13 LAST 367	22,6102	2 1111 0		INDEX	PIPSLECT	
0070	REF	6 LAST 367	22,6103	2 1100 0		INDEX	DTCOUNT	SELECT APPROPRIATE DELTA T FROM LIST
0071	REF	1	22,6104	3 6130 0		CAF	DELTA	
0072			22,6105	2 5777 1		EXTEND		
0073	REF	1	22,6106	4 1110 1		MP	TPERIOD	AND MULTIPLY BY PERIOD
0074	REF	2 LAST 141	22,6107	6 4477 1		AD	FIVE	ROUND RESULT
0075			22,6110	2 5777 1		EXTEND		
0076	REF	1	22,6111	4 6146 0		MP	ONETENTH	
0077	REF	21 LAST 337	22,6112	5 0575 0		TS	RUPTSTOR +3	TIME (DT) TILL NEXT INTERRUPT 10MS
0078	REF	14 LAST 367	22,6113	1 1111 0	NEXTRUPT	CCS	PIPSLECT	
0079	REF	1	22,6114	0 6121 0		TC	ZPIPRUPT	CALL WAITLIST FOR ZPIPA
0080	REF	22 LAST 367	22,6115	3 0575 0		XCH	RUPTSTOR +3	
0081	REF	49 LAST 366	22,6116	0 2173 0		TC	WAITLIST	CALL WAITLIST FOR YPIPA
0082	REF	3 LAST 366	22,6117	44024 1		CADR	SWAYROTY	
0083	REF	3 LAST 367	22,6120	0 6124 0		TC	ENDSWAY	
0084	REF	23 LAST 367	22,6121	3 0575 0	ZPIPRUPT	XCH	RUPTSTOR +3	

L INFLIGHT ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 3

0085	REF	50	LAST	367	22,6122	0	2173	0	TC	WAITLIST	
0086	REF	2	LAST	366	22,6123		44017	1	CADR	SWAYROTZ	
0087	REF	19	LAST	366	22,6124	3	0032	0	XCH	LPRUPT	REPLACE LP
0088					22,6125	2	5777	1	EXTEND		
0089	REF	19	LAST	265	22,6126	4	4516	0	MP	BIT1	
0090	REF	37	LAST	337	22,6127	0	2256	1	TC	TASKOVER	END OF SWAY ROUTINE

L INFLIGHT ALIGNMENT PROGRAM

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R0091 MEMORY ASSIGNMENTS

0092	REF 134 LAST 26	1100	DTCOUNT	EQUALS	AMEMORY	YPIPA STATE COUNTER (0-7)
0093	REF 135 LAST 369	1102	SWAYPULS	EQUALS	AMEMORY +2	NEXT YPIPA PULSE (+1,-1)
0094	REF 136 LAST 369	1104	PHAZING	EQUALS	AMEMORY +4	TIME DELAY FOR ZPIPA START
A0095						INITIALIZED BY KEYBOARD
A0096						+XXXXX. E-2 SEC
A0097						MUST BE GREATER THAN 00001
0098	REF 137 LAST 369	1105	ENDSROT	EQUALS	AMEMORY +5	FLAG FOR PROGRAM EXIT
A0099						SET BY KEYBOARD
A0100						= 00001. TO END SWAYROUTINE
A0101						= +00000. TO CONTINUE
0102	REF 138 LAST 369	1110	TPERIOD	EQUALS	AMEMORY +8D	PERIOD OF SWAY
A0103						SET BY KEYBOARD
A0104						= XX.XXX SEC
0105	REF 139 LAST 369	1111	PIPSLECT	EQUALS	AMEMORY +9D	INDEX FOR PIPA SELECTION
0106	22,6130	01602 1	DELTA	DEC	.05482	DELTA TO
0107	22,6131	01064 1		DEC	.03444	1
0108	22,6132	00720 1		DEC	.02833	2
0109	22,6133	00636 1		DEC	.02528	3
0110	22,6134	00602 0		DEC	.02356	4
0111	22,6135	00562 0		DEC	.02259	5
0112	22,6136	00553 1		DEC	.02213	6
0113	22,6137	00553 1		DEC	.02213	7
0114	22,6140	00562 0		DEC	.02259	8
0115	22,6141	00602 0		DEC	.02356	9
0116	22,6142	00636 1		DEC	.02528	10
0117	22,6143	00720 1		DEC	.02833	11
0118	22,6144	01064 1		DEC	.03444	12
0119	22,6145	04173 0		DEC	.1325	13
0120	22,6146	03146 1	ONETENTH	DEC	E-1	

L INFLIGHT ALIGNMENT PROGRAM

USER'S OWN PAGE NO. 5

P0122 VERIFICATION ASSISTANVE FOR INFLIGHT

0123	REF	17 LAST 362	22,6147	0 4000 0	MYTEST	TC	INTPRET		456
0124			22,6150	45176 0		DMOVE	0		356
0125	REF	3 LAST 354	22,6151	05174 0			ZERODP	SET ANGLES TO ZERO AND TEST	256
0126	REF	1	22,6152	33523 0		STORE	IGC		156
0127			22,6153	47576 0		NOLOD	0		056
0128	REF	1	22,6154	33525 0		STORE	MGC		-56
0129			22,6155	47576 0		NOLOD	0		+56
0130	REF	5 LAST 360	22,6156	33521 1		STORE	OGC		
0131			22,6157	76776 0		ITC	0		
0132	REF	1	22,6160	04262 0			DOTEST		
0133			22,6161	47176 1		COMP	0	SET ANGLES TO -HALF AND TEST	
0134	REF	1	22,6162	05200 0			HALFDP		
0135	REF	2 LAST 370	22,6163	33523 0		STORE	IGC		
0136			22,6164	47576 0		NOLOD	0		
0137	REF	2 LAST 370	22,6165	33525 0		STORE	MGC		
0138			22,6166	47576 0		NOLOD	0		
0139	REF	6 LAST 370	22,6167	33521 1		STORE	OGC		
0140			22,6170	76776 0		ITC	0		
0141	REF	2 LAST 370	22,6171	04262 0			DOTEST		
0142			22,6172	45175 0	CHGIGC	DMOVE	1	CHANGE IGC,MGC, AND OGC AND TEST	
0143			22,6173	70776 0		DAD			
0144	REF	6 LAST 362	22,6174	01317 0			AZIMUTH		
0145	REF	1	22,6175	04256 1			INCRMT		
0146	REF	3 LAST 370	22,6176	33523 0		STORE	IGC		
0147			22,6177	47576 0		NOLOD	0		
0148	REF	7 LAST 370	22,6200	33317 1		STORE	AZIMUTH		
0149			22,6201	66775 1		DSJ	1		
0150			22,6202	43772 1		BPL	ITC		
0151	REF	4 LAST 370	22,6203	01523 1			IGC		
0152	REF	2 LAST 370	22,6204	05200 0			HALFDP		
0153	REF	1	22,6205	04260 1			OUT		
0154	REF	3 LAST 370	22,6206	04262 0			DOTEST		
0155			22,6207	45175 0	CHGMGC	DMOVE	1	CHANGE MGC AND OGC AND TEST	
0156			22,6210	70776 0		DAD			
0157	REF	6 LAST 357	22,6211	01321 0			GYROCSW		

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0158	REF	2 LAST 370	22,6212	04256 1		INCRMT	
0159	REF	3 LAST 370	22,6213	33525 0	STORE	MGC	
0160			22,6214	47576 0	NOLOD	0	
0161	REF	7 LAST 370	22,6215	33321 1	STORE	GYROCSW	
0162			22,6216	66775 1	DSU	1	
0163			22,6217	43772 1	BPL	ITC	
0164	REF	4 LAST 371	22,6220	01525 1		MGC	
0165	REF	3 LAST 370	22,6221	05200 0		HALFDP	
0166	REF	1	22,6222	04251 0		RESETM	
0167	REF	4 LAST 370	22,6223	04262 0		DOTEST	
0168			22,6224	45175 0	CHGOGC	DMOVE 1	RESET OGC AND TEST
0169			22,6225	70776 0	DAD		
0170	REF	3 LAST 334	22,6226	01323 1		PRELXGA	
0171	REF	3 LAST 371	22,6227	04256 1		INCRMT	
0172	REF	7 LAST 370	22,6230	33521 1	STORE	OGC	
0173			22,6231	47576 0	NOLOD	0	
0174	REF	4 LAST 371	22,6232	33323 0	STORE	PRELXGA	
0175			22,6233	66775 1	DSU	1	
0176			22,6234	43772 1	BPL	ITC	
0177	REF	8 LAST 371	22,6235	01521 0		OGC	
0178	REF	4 LAST 371	22,6236	05200 0		HALFDP	
0179	REF	1	22,6237	04244 1		RESETO	
0180	REF	5 LAST 371	22,6240	04262 0		DOTEST	
0181			22,6241	76776 0	ITC	0	
0182	REF	1	22,6242	04225 0		CHGOGC	
0183			22,6243	47176 1	RESETO	COMP 0	RESET OGC TO-HALF
0184	REF	5 LAST 371	22,6244	05200 0		HALFDP	LOOP TO CHGMGC
0185	REF	5 LAST 371	22,6245	33323 0	STORE	PRELXGA	
0186			22,6246	76776 0	ITC	0	
0187	REF	1	22,6247	04210 0		CHGMGC	
0188			22,6250	47176 1	RESETM	COMP 0	RESET MGC TO -HALF
0189	REF	6 LAST 371	22,6251	05200 0		HALFDP	LOOP TO CHGIGC
0190	REF	8 LAST 371	22,6252	33321 1	STORE	GYROCSW	
0191			22,6253	76776 0	ITC	0	
0192	REF	1	22,6254	04173 0		CHGIGC	
0193			22,6255	06314 1	INCRMT	2DEC .20	
0193			22,6256	31463 1			
0194			22,6257	77576 0	OUT	EXIT 0	END OF MAIN
0195	REF	48 LAST 366	22,6260	0 2124 1	LASTWORD	TC	ENDOFJOB

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0196			22,6261	45575 1	DOTEST	ITA	1	
0197			22,6262	75172 1		VMOVE	ITC	
0198	REF	6 LAST 354	22,6263	01315 1			LATITUDE	
0199	REF	1	22,6264	15573 1			UNITX	
0200	REF	1	22,6265	04313 1			MYROT	
0201			22,6266	47576 0		NOLDD	0	
0202	REF	3 LAST 359	22,6267	33403 0		STORE	STARAD	
0203			22,6270	75175 0		VMOVE	1	
0204			22,6271	76776 0		ITC		
0205	REF	1	22,6272	15601 1			UNITY	
0206	REF	2 LAST 372	22,6273	04313 1			MYROT	
0207			22,6274	47576 0		NOLDD	0	
0208	REF	4 LAST 372	22,6275	33411 0		STORE	STARAD +6D	
0209			22,6276	75176 0		VMOVE	0	
0210	REF	2 LAST 372	22,6277	15573 1			UNITX	
0211			22,6300	32007 1		STORE	6D	
0212			22,6301	75176 0		VMOVE	0	
0213	REF	2 LAST 372	22,6302	15601 1			UNITY	
0214			22,6303	32015 1		STORE	12D	
0215			22,6304	76776 0		ITC	0	
0216	REF	2 LAST 360	22,6305	04761 0			AXISGEN	
0217			22,6306	76776 0		ITC	0	SEND NEW VECTORS TO CALCGTA
0218	REF	2 LAST 360	22,6307	04353 0			CALCGTA	
0219			22,6310	44576 0		ITCI	0	
0220	REF	7 LAST 372	22,6311	01315 1			LATITUDE	
0221			22,6312	45575 1	MYROT	ITA	1	INITIALIZE
0222			22,6313	43411 1		TEST	SWITCH	
0223	REF	5 LAST 347	22,6314	00052 0			S2	
0224	REF	3 LAST 355	22,6315	00006 1			NBSMBIT	
0225	REF	1	22,6316	04321 0			MYROT1	
0226	REF	4 LAST 372	22,6317	00006 1			NBSMBIT	
0227			22,6320	75575 1	MYROT1	AXT,1	1	ROTATE X,Z ABOUT Y
0228			22,6321	74423 1		AXT,2	DMOVE	
0229			22,6322	00005 1			4	
0230			22,6323	00001 0			0	
0231	REF	5 LAST 370	22,6324	01523 1			IGC	
0232			22,6325	32037 1		STORE	30D	
0233			22,6326	76776 0		ITC	0	
0234	REF	2 LAST 354	22,6327	04566 0			ACCURROT	

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0235			22,6330	75575 1	AXT,1	1	ROTATE X,Y ABOUT Z
0236			22,6331	74423 1	AXT,2	DMOVE	
0237			22,6332	00003 1		2	
0238			22,6333	00005 1		4	
0239	REF	5 LAST 371	22,6334	01525 1		MGC	
0240			22,6335	32037 1	STORE	30D	
0241			22,6336	76776 0	ITC	0	
0242	REF	3 LAST 372	22,6337	04566 0		ACCURROT	
0243			22,6340	75575 1	AXT,1	1	ROTATE Z,Y ABOUT X
0244			22,6341	74423 1	AXT,2	DMOVE	
0245			22,6342	00001 0		0	
0246			22,6343	00003 1		2	
0247	REF	9 LAST 371	22,6344	01521 0		OGC	
0248			22,6345	32037 1	STORE	30D	
0249			22,6346	76776 0	ITC	0	
0250	REF	4 LAST 373	22,6347	04566 0		ACCURROT	
0251			22,6350	44576 0	ITCI	0	
0252	REF	6 LAST 372	22,6351	00052 0		S2	

L RTB OP CODES

USER'S OWN PAGE NO. 1

0001				30,6252			BANK	30	
R0002									
0003	REF	4	LAST	335	30,6252	0 2676 1	LOADTIME	TC	READTIME
0004	REF	24	LAST	367	30,6253	4 0572 0		CS	RUPTSTOR
0005	REF	312	LAST	358	30,6254	5 0115 1		TS	MPAC
0006	REF	25	LAST	374	30,6255	4 0573 1		CS	RUPTSTOR +1
0007	REF	313	LAST	374	30,6256	5 0116 1		TS	MPAC +1
0008					30,6257	2 0016 1		RELINT	
0009	REF	114	LAST	366	30,6260	3 5501 0		CAF	ZERO
0010	REF	14	LAST	105	30,6261	5 0066 1		TS	NEWEQIND
0011	REF	314	LAST	374	30,6262	5 0117 0		TS	MPAC +2
0012	REF	4	LAST	97	30,6263	0 5237 1		TC	DPEXIT

L RTB OP CODES

USER'S OWN PAGE NO. 2

P0013 ROUTINE TO RESET THE PUSHDOWN POUNTER

0014	REF	16	LAST	312	30,6264	4	0067	1	FRESHPD	CS	FIXLOC
0015					30,6265	4	0000	0		COM	
0016	REF	21	LAST	312	30,6266	5	0123	1		TS	PUSHLOC
0017	REF	15	LAST	78	30,6267	0	4703	1		TC	RE-ENTER

L RTB OP CODES

USER'S OWN PAGE NO. 3

P0018 ROUTINE TO ZERO OUT THE FIRST 38 LOC5 OF A VAC AREA

0019	REF	1		30,6270	3 6302 0	ZEROVAC	CAF	37DEC
0020	REF	55 LAST 203		30,6271	5 0102 1	ZVLOOP	TS	TEM2
0021	REF	17 LAST 375		30,6272	6 0067 0		AD	FIXLOC
0022	REF	205 LAST 365		30,6273	5 0001 0		TS	Q
0023	REF	115 LAST 374		30,6274	3 5501 0		CAF	ZERO
0024	REF	206 LAST 376		30,6275	2 0001 1		INDEX	Q
0025				30,6276	5 0000 1		TS	0
0026	REF	56 LAST 376		30,6277	1 0102 0		CCS	TEM2
0027	REF	1		30,6300	0 6271 0		TC	ZVLOOP
0028	REF	16 LAST 375		30,6301	0 4703 1		TC	RE-ENTER
0029				30,6302	00045 0	37DEC	DEC	37

L RTB OP CODES

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P0030 ROUTINE TO CONVERT IS COMP. NOS. TO IS COMP.

0031	REF 315 LAST 374	30,6303	1 0115 0	CDULOGIC	CCS	MPAC	THIS BASIC ROUTINE TESTS CDU ANGLES FOR +OR-SIGN INCLUDING ZERO AND FORMS A DP NUMBER CORRESPONDING TO ANGLE
0032	REF 1	30,6304	0 6311 1		TC	CDULOG1	
0033	REF 2 LAST 377	30,6305	0 6311 1		TC	CDULOG1	
0034		30,6306	0 6307 0		TC	+1	
0035	REF 7 LAST 362	30,6307	4 4522 1		CS	HALF	USE
0036		30,6310	0 6312 1		TC	+2	SMOVE 1
0037	REF 116 LAST 376	30,6311	4 5501 1	CDULOG1	CS	ZERO	RTB
0038	REF 53 LAST 291	30,6312	3 0034 0		XCH	OVCTR	CDUXYZ
0039	REF 316 LAST 377	30,6313	3 0115 1		XCH	MPAC	CDULOGIC
0040		30,6314	2 5777 1		EXTEND		
0041	REF 8 LAST 377	30,6315	4 4522 1		MP	HALF	
0042	REF 54 LAST 377	30,6316	3 0034 0		XCH	OVCTR	
0043	REF 54 LAST 366	30,6317	6 0003 1		AD	LP	
0044	REF 317 LAST 377	30,6320	3 0116 1		XCH	MPAC +1	
0045	REF 55 LAST 377	30,6321	3 0034 0		XCH	OVCTR	
0046	REF 318 LAST 377	30,6322	3 0115 1		XCH	MPAC	
0047	REF 5 LAST 374	30,6323	0 5237 1		TC	DPEXIT	

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P0048 ROUTINE TO CONVERT 1S COMP. NOS. TO 2S COMP.

0049	REF 117 LAST 377	30,6324	3 5501 0	1ST02S	CAF	ZERO	
0050	REF 319 LAST 377	30,6325	3 0116 1		XCH	MPAC +1	
0051		30,6326	6 0000 1		DOUBLE		
0052	REF 56 LAST 377	30,6327	5 0034 0		TS	OVCTR	
0053	REF 118 LAST 378	30,6330	3 5501 0		CAF	ZERO	
0054	REF 320 LAST 378	30,6331	6 0115 1		AD	MPAC	
0055	REF 321 LAST 378	30,6332	6 0115 1		AD	MPAC	
0056	REF 303 LAST 367	30,6333	1 0000 0		CCS	A	
0057	REF 123 LAST 366	30,6334	6 4516 1		AD	ONE	
0058		30,6335	0 6337 0		TC	+2	
0059		30,6336	4 0000 0		COM		
0060	REF 322 LAST 378	30,6337	5 0115 1	ZYXR	TS	MPAC	AND MAYBE OVERFLOW.
0061	REF 6 LAST 377	30,6340	0 5237 1		TC	DPEXIT	
0062	REF 304 LAST 378	30,6341	2 0000 0		INDEX	A	HANDLE OVERFLOW IN STANDARD ANGULAR WAY.
0063	REF 4 LAST 203	30,6342	3 4477 1		CAF	LIMITS	
0064	REF 323 LAST 378	30,6343	6 0115 1		AD	MPAC	GUARANTEED NO OVERFLOW.
0065	REF 1	30,6344	0 6337 0		TC	ZYXR	

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0066				30,6345	2	0017	0	READPIPS	INHINT	
0067	REF	2	LAST	335	30,6346	4	0044	0	CS	PIPAX
0068	REF	305	LAST	378	30,6347	4	0000	0	CS	A
0069	REF	18	LAST	376	30,6350	2	0067	1	INDEX	FIXLOC
0070	REF	7	LAST	354	30,6351	5	0040	0	TS	VAC
0071	REF	6	LAST	367	30,6352	4	0045	1	CS	PIPAY
0072	REF	306	LAST	379	30,6353	4	0000	0	CS	A
0073	REF	19	LAST	379	30,6354	2	0067	1	INDEX	FIXLOC
0074	REF	8	LAST	379	30,6355	5	0042	1	TS	VAC +2
0075	REF	2	LAST	335	30,6356	4	0046	1	CS	PIPAZ
0076	REF	307	LAST	379	30,6357	4	0000	0	CS	A
0077	REF	20	LAST	379	30,6360	2	0067	1	INDEX	FIXLOC
0078	REF	9	LAST	379	30,6361	5	0044	1	TS	VAC +4
0079				30,6362	2	0016	1		RELINT	
0080	REF	119	LAST	378	30,6363	3	5501	0	CAF	ZERO
0081	REF	21	LAST	379	30,6364	2	0067	1	INDEX	FIXLOC
0082	REF	10	LAST	379	30,6365	5	0041	1	TS	VAC +1
0083	REF	22	LAST	379	30,6366	2	0067	1	INDEX	FIXLOC
0084	REF	11	LAST	379	30,6367	5	0043	0	TS	VAC +3
0085	REF	23	LAST	379	30,6370	2	0067	1	INDEX	FIXLOC
0086	REF	12	LAST	379	30,6371	5	0045	0	TS	VAC +5
0087	REF	15	LAST	374	30,6372	5	0066	1	TS	NEWEQIND
0088	REF	120	LAST	379	30,6373	4	5501	1	VMODE	ZERO
0089	REF	7	LAST	378	30,6374	0	5240	1	TC	DPEXIT +1

LOAD INDICATOR OFF.

0090	REF	24	LAST	379	30,6375	2	0067	1	PULSEIMU	INDEX	FIXLOC	ADDRESS OF GYRO COMMANDS SHOULD BE IN X1
0091	REF	7	LAST	360	30,6376	4	0046	1	CS	X1		
0092					30,6377	4	0000	0	COM			
0093	REF	49	LAST	365	30,6400	0	5654	0	TC	BANKCALL		
0094	REF	4	LAST	342	30,6401		31433	1	CADR	GYRODPNT		
0095	REF	17	LAST	376	30,6402	0	4703	1	TC	RE-ENTER		

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0096	REF	50	LAST	379	30,6403	0	5654	0	SGNAGREE	TC	BANKCALL
0097	REF	8	LAST	262	30,6404		07154	0		CADR	TPAGREE
0098	REF	8	LAST	379	30,6405	0	5237	1		TC	DPEXIT

R0099 ROUTINE TO COMPLETE OPTICS TRUNNION ANGLE CONVERSION FROM COUNTER
 R0100 READING TO DP REVOLUTIONS. CALLS TO TRUNLOG SHOULD BE IMMEDIATELY
 R0101 PRECEDED BY A CALL TO CDULOGIC. (NO NEED TO CHECK SXT POWER-ON BIT.)

0106	REF	1			30,6406	3	6414	0	TRUNLOG	CAF	10DEGS	CORRECT FOR 20 DEG OFFSET (CDULOGIC ALREADY SHIFTED IT RIGHT ONE) AND SHIFT RIGHT TWO ADDITIONAL PLACES.
0107	REF	324	LAST	378	30,6407	6	0115	1		AD	MPAC	
0108	REF	325	LAST	380	30,6410	5	0115	1		TS	MPAC	
0109	REF	4	LAST	194	30,6411	3	4502	1		CAF	QUARTER	
0110	REF	3	LAST	223	30,6412	0	5416	1		TC	SHORTMP	WITH PD IF AT END W/ NO ADDRESSES.
01105	REF	37	LAST	305	30,6413	0	4024	0		TC	DANZIG	
0111					30,6414		07020	1	10DEGS	DEC	3600	HALF OF SXT TRUNION OFFSET

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0112	REF	1		30,6415	3 6435 0	INCRCDUS	CAF	LOCTHETA
0113	REF	110	LAST 362	30,6416	5 0077 1		TS	BUF
0114	REF	48	LAST 359	30,6417	3 5503 1		CAF	TWO
0115	REF	111	LAST 381	30,6420	5 0100 0	INCRCDU2	TS	BUF +1
0116				30,6421	6 0000 1		DOUBLE	
0117	REF	27	LAST 104	30,6422	6 0070 0		AD	VACLOC
0118	REF	308	LAST 379	30,6423	2 0000 0		INDEX	A
0119				30,6424	4 0000 0		CS	0
0120				30,6425	4 0000 0		COM	
0121	REF	51	LAST 380	30,6426	0 5654 0		TC	BANKCALL
0122	REF	2	LAST 241	30,6427	30361 0		CADR	CDUINC
0123	REF	112	LAST 381	30,6430	1 0077 0		CCS	BUF
0124	REF	113	LAST 381	30,6431	5 0077 1		TS	BUF
0125	REF	114	LAST 381	30,6432	1 0100 1		CCS	BUF +1
0126	REF	1		30,6433	0 6420 1		TC	INCRCDU2
0127	REF	1		30,6434	0 6373 0		TC	VMODE
0128	REF	15	LAST 334	30,6435	00702 1	LOCTHETA	ADRES	THETAD +2

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P0129 LOG FUNCTION SUBROUTINE

R0130 INPUT... X (IN MPAC)

R0131 OUTPUT... -LN(X)/32 (IN MPAC. SCALED BY 32TD FIT LOG OF 2EXP-28.

LOC	REF	1	30,6436	0 6563 1	LOG	TC	SWAPLOC	CALLED BY	RTB	LOG
0132	REF	1	30,6436	0 6563 1	LOG	TC	SWAPLOC			
0133	REF	18 LAST 370	30,6437	0 4000 0		TC	INTPRET			
0134			30,6440	47574 1		NOLOD	2			
0135			30,6441	57726 0		TSLC	BDSU			
0136			30,6442	77576 0		EXIT				
A0137										
0138			30,6443	00040 0			31D			
0139	REF	1	30,6444	21043 0			NEARONE			
0140	REF	5 LAST 305	30,6445	0 5554 0		TC	POLY			GETS LOG OF PRINCIPLE PART.
0141			30,6446	00006 1		DEC	6			
0142			30,6447	00000 1		2DEC	0			
C0142			30,6450	00000 1						
0143			30,6451	01001 1		2DEC	.031335467			
C0143			30,6452	14636 1						
0144			30,6453	00325 0		2DEC	.0130145859			
C0144			30,6454	07310 1						
0145			30,6455	00541 1		2DEC	.0215738898			
C0145			30,6456	16735 1						
0146	REF	121 LAST 379	30,6457	3 5501 0		CAF	ZERO			
0147	REF	326 LAST 380	30,6460	5 0117 0		TS	MPAC + 2			
0148	REF	1	30,6461	3 6502 0		CAF	CLOG1/2 +1			
0149	REF	327 LAST 382	30,6462	3 0116 1		XCH	MPAC +1			
0150	REF	1	30,6463	5 0100 0		TS	LOGTEM +1			
0151	REF	2 LAST 382	30,6464	3 6501 0		CAF	CLOG1/2			
0152	REF	328 LAST 382	30,6465	3 0115 1		XCH	MPAC			
0153	REF	2 LAST 382	30,6466	3 0077 1		XCH	LOGTEM			
0154	REF	25 LAST 379	30,6467	2 0067 1		INDEX	FIXLOC			
0155			30,6470	4 0037 1		CS	31D			LOAD POSITIVE SHIFT COUNT IN A.
0156	REF	1	30,6471	0 5422 0		TC	SHORTMP2			MULTIPLY BY SHIFT COUNT.
0157	REF	329 LAST 382	30,6472	3 0117 0		XCH	MPAC +2			
0158	REF	330 LAST 382	30,6473	3 0116 1		XCH	MPAC +1			
0159	REF	331 LAST 382	30,6474	3 0115 1		XCH	MPAC			RESULT WAS IN MPAC +1 AND MPAC +2.
0160	REF	1	30,6475	0 5171 0		TC	DAD			ADD IN PREVIOUS RESULT. LEFT IN LOGTEM.
0161	REF	3 LAST 382	30,6476	00077 1		ADRES	LOGTEM			
0162	REF	2 LAST 382	30,6477	0 6563 1		TC	SWAPLOC			
0163	REF	9 LAST 380	30,6500	0 5237 1		TC	DPEXIT			
0164			30,6501	00542 1	CLOG1/2	2DEC	.0216608494			
C0164			30,6502	34414 1						

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P0165 SUBROUTINE TO COMPUTE THE ARCTAN OF THE RATIO OF TWO FUNCTIONS.

R0166 CALLED AS THOUGH A BASIC SUBR... RTB ARCTAN

0167	REF	3	LAST 382	30,6503	0 6563 1	ARCTAN	TC	SWAPLOC	ARCTAN COMPUTES ARCTAN(VACZ/VACX)
0168	REF	19	LAST 382	30,6504	0 4000 0		TC	INTPRET	
0169				30,6505	51176 0	INATAN	DSQ	0	-----
0170	REF	1		30,6506	00045 0			VACZ	RESULT HAS VALUE BETWEEN + AND - 1/2
									(180 DEG. SCALED) IS LEFT IN MPAC.
0171				30,6507	51172 1		DSQ	4	
0172				30,6510	70746 0		DAD	BOV	
0173				30,6511	47653 1		BZE	SQRT	
0174				30,6512	61746 0		BDDV	BOV	
0175				30,6513	56713 1		TSRT	ASIN	
0176	REF	1		30,6514	00041 1			VACX	
0177				30,6515	77777 0			-	
0178	REF	1		30,6516	20547 0			2BIG	
0179	REF	1		30,6517	20553 0			ATAN0/0	
0180	REF	2	LAST 383	30,6520	00045 0			VACZ	
0181	REF	1		30,6521	20557 1			ATAN=90	
0182				30,6522	00002 0			1	AND PUSH IT DOWN
0183				30,6523	73774 1		BMN	2	
0184				30,6524	41423 1		LODDN	DMOVE	
0185				30,6525	77576 0		EXIT		
0186	REF	2	LAST 383	30,6526	00041 1			VACX	
0187	REF	1		30,6527	20534 1			NEGVX	
0188				30,6530	77777 0			-	(INACTIVE NEEDED FOR PUSH-UP).
0189	REF	4	LAST 383	30,6531	0 6563 1	ATANDUN	TC	SWAPLOC	
0190	REF	10	LAST 382	30,6532	0 5237 1		TC	DPEXIT	
0191				30,6533	47174 0	NEGVX	COMP	2	IF VACX NEGATIVE, CHNAGE RESULT.
0192				30,6534	43742 1		BPL	DAD	
0193				30,6535	76576 1		RTB		
0194				30,6536	77777 0			-	
0195	REF	1		30,6537	20543 1			NEGOUT	
0196	REF	1		30,6540	21174 0			HALVE	
0197	REF	1		30,6541	20532 1			ATANDUN	
0198				30,6542	47575 0	NEGOUT	NOLOD	1	
0199				30,6543	66771 0		DSJ	RTB	
0200	REF	2	LAST 383	30,6544	21174 0			HALVE	
0201	REF	2	LAST 383	30,6545	20532 1			ATANDUN	
0202				30,6546	47575 0	2BIG	NOLOD	1	
0203				30,6547	45772 1		VSRT	ITC	
0204				30,6550	00002 0			1	
0205	REF	1		30,6551	20506 0			INATAN	

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0206			30,6552	45175 0	ATAN0/0	DMOVE	1	
0207			30,6553	76576 1		RTB		
0208	REF	1	30,6554	21057 0			3ZEROS	WHAT SHOULD ARCTAN(0/0) =
0209	REF	3 LAST 383	30,6555	20532 1			ATANDUN	
0210			30,6556	53775 1	ATAN=90	SIGN	1	
0211			30,6557	76576 1		RTB		
0212	REF	1	30,6560	21055 1			FOURTH	
0213	REF	3 LAST 383	30,6561	00045 0			VACZ	
0214	REF	4 LAST 384	30,6562	20532 1			ATANDUN	

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P0215 BASIC SUBROUTINE TO SAVE INTERPRETER REGISTERS (SAME BANK AS RTBS).

0216	REF	27	LAST	201	30,6563	3	0120	1	SWAPLOC	XCH	LOC	SUBROUTINE TO SWAP LOC, ADRLOC, AND ORDER REGISTERS WITH LOCATIONS 28, 29, AND 30 IN TEMP AREA.
0217	REF	26	LAST	382	30,6564	2	0067	1		INDEX	FIXLOC	
0218					30,6565	3	0034	0		XCH	28D	
0219	REF	28	LAST	385	30,6566	5	0120	1		TS	LOC	USEFUL FOR USING INTERPRETER IN SUBROUT AND THEN ABLE TO CONTINUE IN MIDDLE OF CURRENT EQUATIONS.
0220	REF	24	LAST	104	30,6567	3	0121	0		XCH	ADRLOC	
0221	REF	27	LAST	385	30,6570	2	0067	1		INDEX	FIXLOC	
0222					30,6571	3	0035	1		XCH	29D	USE... TC SWAPLOC PACK INTERPRETIVE BANK AND ORDER IN 30D.
0223	REF	25	LAST	385	30,6572	5	0121	0		TS	ADRLOC	
0224	REF	16	LAST	109	30,6573	4	0061	1		CS	BANKSET	
0225	REF	16	LAST	105	30,6574	6	0063	1		AD	ORDER TC SWAPLOC TC DANZIG
0226	REF	28	LAST	385	30,6575	2	0067	1		INDEX	FIXLOC	
0227					30,6576	3	0036	1		XCH	30D	
0228	REF	17	LAST	385	30,6577	5	0063	1		TS	ORDER	
0229	REF	13	LAST	234	30,6600	7	4720	1		MASK	LOW7	
0230	REF	18	LAST	385	30,6601	3	0063	1		XCH	ORDER	
0231	REF	6	LAST	227	30,6602	7	2261	1		MASK	BANKMASK	
0232					30,6603	4	0000	0		COM		
0233	REF	17	LAST	385	30,6604	5	0061	0		TS	BANKSET	
0234	REF	207	LAST	376	30,6605	0	0001	0		TC	Q	

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P0235 SUBROUTINE TO SET MPACS TO POS OR NEG MAX DEPENDING ON SIGN MPAC

0236	REF	332	LAST	382	30,6606	1	0115	0	SIGNMPAC	CCS	MPAC
0237	REF	1			30,6607	0	6621	1		TC	SETPOS
0238	REF	2	LAST	386	30,6610	0	6621	1		TC	SETPOS
0239					30,6611	0	6612	1		TC	+1
0240	REF	5	LAST	50	30,6612	3	4500	0		CAF	NEGSIGN
0241	REF	333	LAST	386	30,6613	5	0115	1		TS	MPAC
0242	REF	334	LAST	386	30,6614	5	0116	1		TS	MPAC + 1
0243	REF	335	LAST	386	30,6615	5	0117	0		TS	MPAC + 2
0244	REF	122	LAST	382	30,6616	3	5501	0		CAF	ZERO
0245	REF	16	LAST	379	30,6617	5	0066	1		TS	NEWEQIND
0246	REF	11	LAST	383	30,6620	0	5237	1		TC	DPEXIT
0247	REF	19	LAST	265	30,6621	3	4476	0	SETPOS	CAF	POS MAX
0248					30,6622	0	6613	0		TC	-7

L	RTB	OP	CODES						USER'S OWN PAGE NO. 14
0249	REF	49	LAST 381	30,6623	3 5503 1	V1STO2S	CAF	TWO	THIS ROUTINE TAKES GIMBAL ANGLES SCALED 2PI IN THE VAC AND LEAVES 25 COMPLIMENT ANSWERS IN MPAC.....MPAC +2 BASE ADDRESS OF VECTOR ACCUMULATOR
0250	REF	23	LAST 81	30,6624	5 0071 1		TS	VBUF	
0251				30,6625	6 0000 1		DOUBLE		
0252	REF	28	LAST 381	30,6626	6 0070 0		AD	VACLOC	
0253	REF	24	LAST 387	30,6627	5 0072 1		TS	VBUF +1	
0254	REF	25	LAST 387	30,6630	2 0072 0		INDEX	VBUF +1	
0255	REF	208	LAST 385	30,6631	4 0001 1		CS	Q	
0256				30,6632	4 0000 0		COM		
0257				30,6633	6 0000 1		DOUBLE		
0258	REF	57	LAST 378	30,6634	5 0034 0		TS	OVCTR	SKIPS ON OVERFLOW
0259	REF	123	LAST 386	30,6635	3 5501 0		CAF	ZERO	
0260	REF	26	LAST 387	30,6636	2 0072 0		INDEX	VBUF +1	
0261	REF	309	LAST 381	30,6637	6 0000 1		AD	A	
0262	REF	27	LAST 387	30,6640	2 0072 0		INDEX	VBUF +1	
0263	REF	310	LAST 387	30,6641	6 0000 1		AD	A	
0264	REF	311	LAST 387	30,6642	1 0000 0		CCS	A	TEZT FOR NEGATIVE MAJOR PART
0265	REF	124	LAST 378	30,6643	6 4516 1		AD	ONE	
0266				30,6644	0 6646 0		TC	+2	
0267				30,6645	4 0000 0		COM		
0268	REF	28	LAST 387	30,6646	2 0071 0	ZYXW	INDEX	VBUF	
0269	REF	336	LAST 386	30,6647	5 0115 1		TS	MPAC	
0270	REF	1		30,6650	0 6656 1		TC	ZYXWV	
0271	REF	312	LAST 387	30,6651	2 0000 0		INDEX	A	
0272	REF	5	LAST 378	30,6652	3 4477 1		CAF	LIMITS	NORMAL PROCEDURE FOR ANGLE OVERFLOW
0273	REF	29	LAST 387	30,6653	2 0071 0		INDEX	VBUF	
0274	REF	337	LAST 387	30,6654	6 0115 1		AD	MPAC	
0275	REF	1		30,6655	0 6646 0		TC	ZYXW	
0276	REF	30	LAST 387	30,6656	1 0071 0	ZYXWV	CCS	VBUF	
0277	REF	1		30,6657	0 6624 1		TC	V1STO2S +1	
0278	REF	17	LAST 386	30,6660	5 0066 1		TS	NEWQIND	
0279	REF	50	LAST 387	30,6661	4 5503 0		CS	TWO	
0280	REF	12	LAST 386	30,6662	0 5240 1		TC	DPEXIT +1	
0281	REF	51	LAST 387	30,6663	3 5503 1	V2STOD1S	CAF	TWO	THIS ROUTINE TAKES CDU ANGLES IN MPAC... MPAC +2 AND CONVERTS TO ANGLES SCALED 2PI IN THE VAC LOCATIONS
0282	REF	31	LAST 387	30,6664	5 0071 1		TS	VBUF	
0283				30,6665	6 0000 1		DOUBLE		
0284	REF	29	LAST 387	30,6666	6 0070 0		AD	VACLOC	
0285	REF	32	LAST 387	30,6667	5 0072 1		TS	VBUF +1	
0286	REF	33	LAST 387	30,6670	2 0071 0		INDEX	VBUF	
0287	REF	338	LAST 387	30,6671	4 0115 0		CS	MPAC	
0288				30,6672	2 5777 1		EXTEND		
0289	REF	6	LAST 232	30,6673	4 4520 0		MP	NEG1/2	
0290	REF	34	LAST 387	30,6674	5 0073 0		TS	VBUF +2	UNCORRECTED UPPER PARTS TEST SIGN OF LOWER WORD
0291	REF	55	LAST 377	30,6675	1 0003 0		CCS	LP	
0292	REF	124	LAST 387	30,6676	3 5501 0		CAF	ZERO	
0293				30,6677	0 6702 1		TC	+3	POSITIVE CASE OK
0294				30,6700	0 6701 1		TC	+1	

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0295	REF	9	LAST 377	30,6701	4	4522	1	CS	HALF	NEGATIVE CASE
0296	REF	56	LAST 387	30,6702	6	0003	1	AD	LP	CORRECT LOWER WORD
0297	REF	35	LAST 387	30,6703	2	0072	0	INDEX	VBUF +1	
0298	REF	209	LAST 387	30,6704	5	0001	0	TS	Q	STORE LOWER WORD
0299	REF	125	LAST 387	30,6705	3	5501	0	CAF	ZERO	DEAL WITH OVERFLOW STANDARD WAY
0300	REF	36	LAST 388	30,6706	6	0073	0	AD	VBUF +2	
0301	REF	37	LAST 388	30,6707	2	0072	0	INDEX	VBUF +1	
0302	REF	313	LAST 387	30,6710	5	0000	1	TS	A	STORE UPPER WORD
0303	REF	38	LAST 388	30,6711	1	0071	0	CCS	VBUF	
0304	REF	1		30,6712	0	6664	0	TC	V2STOD1S +1	
0305	REF	126	LAST 388	30,6713	4	5501	1	CS	ZERO	
0306	REF	21	LAST 104	30,6714	5	0065	1	TS	MODE	
0307	REF	38	LAST 380	30,6715	0	4024	0	TC	DANZIG	

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P0308 ROUTINE TO FREE DSKY

0309	REF	20	LAST	361	30,6716	0	3362	0	DSPFREE	TC	FREEDSP
0310	REF	18	LAST	379	30,6717	0	4703	1		TC	RE-ENTER

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P0311 FINAGLE TO GET OGC CORRECTED TO NEAREST POINT ON 16 SPEED.

0312	REF	10	LAST	373	30,6720	4	1520	0	CDUXFIX	CS	OGC	INTERPRETIVE SCALING. (REVS)
0313					30,6721	2	5777	1		EXTEND		
0314	REF	16	LAST	288	30,6722	4	4503	1		MP	BIT12	MULTIPLY BY 1/8 TH.
0315	REF	339	LAST	387	30,6723	5	0116	1		TS	MPAC + 1	SAVE RESULT.
0316	REF	13	LAST	288	30,6724	3	4504	1		CAF	BIT11	1/16 TH.
0317	REF	16	LAST	381	30,6725	6	0700	0		AD	THETAD	TO FIND NEAREST ZERO POINT.
0318	REF	1			30,6726	7	6771	1		MASK	HI4	DROPS BACK TO LOWER (MORE NEG) 1/8TH.
0319	REF	1			30,6727	5	1450	1		TS	K1ROLL	
0320					30,6730	0	6733	0		TC	+3	SKIPS THIS IF ADDITION OVERFLEW.
0321	REF	20	LAST	386	30,6731	3	4476	0		CAF	POS MAX	IN THAT CASE, USE POS MAX.
0322	REF	2	LAST	390	30,6732	5	1450	1		TS	K1ROLL	
0323	REF	3	LAST	390	30,6733	4	1450	0		CS	K1ROLL	THE CURRENT NEAREST ZERO POINT ON 16 SPD
0324	REF	17	LAST	390	30,6734	6	0700	0		AD	THETAD	DELTA FROM ZERO POINT.
0325	REF	340	LAST	390	30,6735	6	0116	1		AD	MPAC + 1	MINUS NEW COMMAND
A0326												A = DELTHETAD -DELNEWCOMMAND
0327	REF	14	LAST	390	30,6736	6	4504	1		AD	BIT11	PLUS 1/16 TH. (180 DEG SCALED.)
0328	REF	314	LAST	388	30,6737	1	0000	0		CCS	A	IF NEG, CHANGE IS MORE THAN + 180 DEG.
0329	REF	1			30,6740	0	6751	1		TC	CHECKNEG	OK, CHECK OTHER WAY.
0330					30,6741		74000	1	NEG1/8+1	DCT	74000	
0331	REF	17	LAST	390	30,6742	4	4503	1		CS	BIT12	CHANGE TOO BIG, MOVE TO NEXT LOWER 0-PT.
0332	REF	4	LAST	390	30,6743	6	1450	1	NEWBIAS	AD	K1ROLL	(NEG ZERO OF CCS COMES HERE ALSO, SO..)
0333	REF	5	LAST	390	30,6744	5	1450	1		TS	K1ROLL	
0334	REF	1			30,6745	0	6756	0		TC	GETNUOGC	SKIPPING ON OVERFLOW.
0335	REF	315	LAST	390	30,6746	2	0000	0		INDEX	A	
0336	REF	6	LAST	387	30,6747	4	4477	0		CS	LIMITS	
0337	REF	1			30,6750	0	6744	0		TC	NEWBIAS + 1	AND SET PROPER LIMIT VALUE.
0338	REF	1			30,6751	6	6741	0	CHECKNEG	AD	NEG1/8+1	
0339	REF	316	LAST	390	30,6752	1	0000	0		CCS	A	CHECK OTHER SIDE.
0340	REF	18	LAST	390	30,6753	3	4503	0		CAF	BIT12	ADD 108 TH TO K1ROLL.
0341	REF	2	LAST	390	30,6754	0	6743	1		TC	NEWBIAS	(+ 0 IMPOSSIBLE.)
0342					30,6755	0	6756	0		TC	+1	NO NEED TO CHANGE BIAS.
0343	REF	341	LAST	390	30,6756	4	0116	0	GETNUOGC	CS	MPAC + 1	NEW DELTA.
0345	REF	6	LAST	390	30,6757	6	1450	1		AD	K1ROLL	AS MODIFIES IF IT WAS NEC.
0346	REF	342	LAST	390	30,6760	5	0115	1		TS	MPAC	
0347					30,6761	0	6765	0		TC	+4	DETECT OVERFLOW.
0348	REF	317	LAST	390	30,6762	2	0000	0		INDEX	A	
0349	REF	7	LAST	390	30,6763	3	4477	1		CAF	LIMITS	GO TO POS MAX FROM NEG MAX. (AND VICEVERSA
0350	REF	343	LAST	390	30,6764	6	0115	1		AD	MPAC	AND GET NEW ANGLE.
0351					30,6765	2	5777	1		EXTEND		
0352	REF	12	LAST	265	30,6766	4	4501	0		MP	BIT14	RESCALE TO REVS.
0353	REF	11	LAST	390	30,6767	5	1520	1		TS	OGC	

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0354 REF 19 LAST 389 30,6770 0 4703 1

TC RE-ENTER

TO NEXT EQUATION WITHOUT PUSHING DOWN.

0355 30,6771 74000 1 HI4

OCT 74000

L	IMU PERFORMANCE TESTS 1										SETLOC 24000		USER'S OWN PAGE NO. 1
0001											12,6000		
0002	REF	127	LAST	388	12,6000	4	5501	1	ALGNTST	CS	ZERO	SXT-NB-IMU FINE ALIGNMENT TEST	
0003	REF	26	LAST	250	12,6001	5	0677	1		TS	CDUIND		
0004	REF	52	LAST	381	12,6002	0	5654	0		TC	BANKCALL		
0005	REF	3	LAST	334	12,6003	3	0000	1		CADR	IMUZERO		
0006	REF	128	LAST	392	12,6004	3	5501	0	OPTDATA	CAF	ZERO	CHECK TARGET AZIMUTH AND ELEVATION	
0007	REF	7	LAST	358	12,6005	5	1400	1		TS	STARS		
0008	REF	125	LAST	387	12,6006	6	4516	1		AD	ONE		
0009	REF	26	LAST	359	12,6007	5	0620	0		TS	DSPTM1 +2		
0010	REF	1			12,6010	3	7740	0		CAF	V05N30E		
0011	REF	30	LAST	365	12,6011	0	3100	0		TC	NVSUB		
0012	REF	26	LAST	359	12,6012	0	3315	0		TC	PRENVBSY		
0013	REF	8	LAST	392	12,6013	2	1400	0		INDEX	STARS		
0014	REF	4	LAST	363	12,6014	3	1346	1		XCH	TAZ		
0015	REF	27	LAST	392	12,6015	5	0616	0		TS	DSPTM1		
0016	REF	9	LAST	392	12,6016	2	1400	0		INDEX	STARS		
0017	REF	4	LAST	363	12,6017	3	1350	0		XCH	TEL		
0018	REF	28	LAST	392	12,6020	5	0617	1		TS	DSPTM1 +1		
0019	REF	1			12,6021	0	7162	0		TC	CHECKLD	R1 = AZIMUTH = +XXX.XX	
0020					12,6022	0	0661	0		OCT	00661	R2 = ELEVATION = +XX.XXX	
0021	REF	1			12,6023	0	7406	1		TC	ENDTEST		
0022	REF	29	LAST	392	12,6024	3	0616	0		XCH	DSPTM1		
0023	REF	10	LAST	392	12,6025	2	1400	0		INDEX	STARS		
0024	REF	5	LAST	392	12,6026	5	1346	1		TS	TAZ		
0025	REF	30	LAST	392	12,6027	3	0617	1		XCH	DSPTM1 +1		
0026	REF	11	LAST	392	12,6030	2	1400	0		INDEX	STARS		
0027	REF	5	LAST	392	12,6031	5	1350	0		TS	TEL		
0028	REF	12	LAST	392	12,6032	1	1400	0		CCS	STARS		
0029					12,6033	0	6036	1		TC	+3		
0030	REF	126	LAST	392	12,6034	3	4516	1		CAF	ONE		
0031	REF	1			12,6035	0	6005	1		TC	OPTDATA +1		
0032	REF	1			12,6036	5	1213	0		TS	COARSAGN		
0033	REF	1			12,6037	5	1313	1		TS	EROPTN		
0034	REF	10	LAST	255	12,6040	5	0035	1		TS	TIME2		
0035	REF	1			12,6041	5	1224	1		TS	NDXCTR		
0036	REF	1			12,6042	6	7741	1		AD	72DEC		
0037	REF	1			12,6043	5	1307	1		TS	MAXPTS2		
0038	REF	53	LAST	392	12,6044	0	5654	0		TC	BANKCALL		
0039	REF	1			12,6045	7	0515	1		CADR	LATAZCHK		
0040	REF	54	LAST	392	12,6046	0	5654	0		TC	BANKCALL		
0041	REF	1			12,6047	7	0552	1		CADR	TARGSM		
0042	REF	1			12,6050	3	7742	1	POSLOAD	CAF	V21N30E	R1 POSITION 1,2,3	
0043	REF	31	LAST	392	12,6051	0	3100	0		TC	NVSUB		
0044	REF	27	LAST	392	12,6052	0	3315	0		TC	PRENVBSY		
0045	REF	19	LAST	365	12,6053	0	3136	0		TC	ENDIDLE		

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0046	REF	2	LAST	392	12,6054	0	7406	1	TC	ENDTEST	
0047					12,6055	0	6050	1	TC	-5	
0048	REF	31	LAST	392	12,6056	3	0616	0	XCH	DSPTM1	
0049	REF	1			12,6057	5	1223	0	TS	POSITON	
0050					12,6060	4	0000	0	COM		
0051	REF	11	LAST	358	12,6061	7	4514	1	MASK	BIT3	
0052	REF	318	LAST	390	12,6062	1	0000	0	CCS	A	
0053					12,6063	0	6065	1	TC	+2	
0054	REF	1			12,6064	0	7107	0	TC	DSPYLOAD	
0055	REF	127	LAST	392	12,6065	3	4516	1	CAF	ONE	
0056	REF	1			12,6066	5	1305	0	TS	COAROFIN	
0057	REF	55	LAST	392	12,6067	0	5654	0	TC	BANKCALL	
0058	REF	1			12,6070		70241	1	CADR	FINDNAVB	COARSE ALIGN MARKS
0059	REF	56	LAST	393	12,6071	0	5654	0	TC	BANKCALL	
0060	REF	15	LAST	342	12,6072		30331	0	CADR	IMUSTALL	WAIT FOR IMUZERO COMPLETION
0061	REF	3	LAST	393	12,6073	0	7406	1	TC	ENDTEST	
0062	REF	57	LAST	393	12,6074	0	5654	0	TC	BANKCALL	
0063	REF	1			12,6075		71037	0	CADR	POSNJUMP	
0064	REF	58	LAST	393	12,6076	0	5654	0	POSNRETN TC	BANKCALL	
0065	REF	1			12,6077		70444	1	CADR	PUTPOSX	
0066	REF	2	LAST	392	12,6100	1	1213	1	CCS	COARSAGN	
0067					12,6101	0	6103	0	TC	+2	
0068					12,6102	0	6106	0	TC	+4	
0069	REF	27	LAST	288	12,6103	1	0215	0	CCS	NEWJOB	
0070	REF	4	LAST	288	12,6104	0	2101	0	TC	CHANG1	
0071					12,6105	0	6100	0	TC	-5	
0072	REF	1			12,6106	0	7331	1	TC	OGCZERO	
0073	REF	59	LAST	393	12,6107	0	5654	0	TC	BANKCALL	
0074	REF	3	LAST	335	12,6110		30143	1	CADR	IMUFINE	INITIATE FINE ALIGN MODE
0075	REF	60	LAST	393	12,6111	0	5654	0	TC	BANKCALL	
0076	REF	16	LAST	393	12,6112		30331	0	CADR	IMUSTALL	WAIT FOR IMUFINE COMPLETION
0077	REF	4	LAST	393	12,6113	0	7406	1	TC	ENDTEST	
0078	REF	129	LAST	392	12,6114	3	5501	0	CAF	ZERO	
0079	REF	2	LAST	393	12,6115	5	1305	0	TS	COAROFIN	
0080	REF	61	LAST	393	12,6116	0	5654	0	TC	BANKCALL	
0081	REF	2	LAST	393	12,6117		70241	1	CADR	FINDNAVB	FINE ALIGN MARKS
0082	REF	21	LAST	389	12,6120	0	3362	0	TC	FREEDSP	
0083	REF	62	LAST	393	12,6121	0	5654	0	TC	BANKCALL	
0084	REF	1			12,6122		70461	0	CADR	SMDCALC	FINE ALIGN TORQUING
0085	REF	63	LAST	393	12,6123	0	5654	0	TC	BANKCALL	
0086	REF	17	LAST	393	12,6124		30331	0	CADR	IMUSTALL	WAIT FOR PULSING COMPLETION
0087	REF	5	LAST	393	12,6125	0	7406	1	TC	ENDTEST	

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0088	REF	64 LAST 393	12,6126	0 5654 0	ERFINAL	TC	BANKCALL
0089	REF	1	12,6127	71515 0		CADR	STOPHOR
0090	REF	2 LAST 392	12,6130	1 1313 0	ERRETN	CCS	EROPTN
0091	REF	1	12,6131	0 6126 1		TC	ERFINAL
0092			12,6132	0 6134 1		TC	+2
0093	REF	6 LAST 393	12,6133	0 7406 1		TC	ENDTEST
0094			12,6134	2 0017 0		INHINT	
0095	REF	1	12,6135	0 7277 1		TC	TPTIME
0096			12,6136	2 0016 1		RELINT	
0097	REF	130 LAST 393	12,6137	3 5501 0		CAF	ZERO
0098	REF	3 LAST 379	12,6140	5 0044 1		TS	PIPAX
0099	REF	7 LAST 379	12,6141	5 0045 0		TS	PIPAY
0100	REF	3 LAST 379	12,6142	5 0046 0		TS	PIPAZ
0101	REF	1	12,6143	5 1230 1		TS	STOREPL
0102	REF	2 LAST 392	12,6144	5 1224 1		TS	NDXCTR
0103	REF	65 LAST 394	12,6145	0 5654 0		TC	BANKCALL
0104	REF	1	12,6146	70660 0		CADR	STORRSLT
0105			12,6147	2 0017 0		INHINT	
0106	REF	1	12,6150	3 7743 0		CAF	60SEC
0107	REF	51 LAST 368	12,6151	0 2173 0		TC	WAITLIST
0108	REF	1	12,6152	24155 0		CADR	PIP1
0109	REF	1	12,6153	3 6202 1		CAF	PIP2ADR
0110	REF	10 LAST 287	12,6154	0 2127 1		TC	JOBSLEEP
0111	REF	2 LAST 394	12,6155	3 6202 1	PIP1	CAF	PIP2ADR
0112	REF	9 LAST 287	12,6156	0 2060 0		TC	JOBWAKE
0113	REF	38 LAST 368	12,6157	0 2256 1		TC	TASKOVER
0114	REF	1	12,6160	4 1226 1	PIP2	CS	PIPNDX
0115	REF	1	12,6161	5 1221 1		TS	PIPINDEX
0116	REF	1	12,6162	0 6613 0		TC	CHECKG
0117			12,6163	2 0016 1		RELINT	
0118	REF	66 LAST 394	12,6164	0 5654 0		TC	BANKCALL
0119	REF	2 LAST 394	12,6165	70660 0		CADR	STORRSLT
0120	REF	2 LAST 394	12,6166	4 1227 0		CS	PIPNDX +1
0121	REF	2 LAST 394	12,6167	5 1221 1		TS	PIPINDEX
0122	REF	2 LAST 394	12,6170	0 6613 0		TC	CHECKG
0123			12,6171	2 0016 1		RELINT	
0124	REF	67 LAST 394	12,6172	0 5654 0		TC	BANKCALL
0125	REF	3 LAST 394	12,6173	70660 0		CADR	STORRSLT
0126			12,6174	2 0017 0		INHINT	
0127	REF	1	12,6175	3 7744 1		CAF	30SEC
0128	REF	52 LAST 394	12,6176	0 2173 0		TC	WAITLIST
0129	REF	2 LAST 394	12,6177	24155 0		CADR	PIP1
0130	REF	3 LAST 394	12,6200	3 6202 1		CAF	PIP2ADR
0131	REF	11 LAST 394	12,6201	0 2127 1		TC	JOBSLEEP
0132	REF	1	12,6202	24160 0	PIP2ADR	CADR	PIP2

UPDATE STORAGE LOCATION

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0133	REF	2	LAST	392	12,6203	3	7742	1	GYROTORK	CAF	V21N30E
0134	REF	32	LAST	392	12,6204	0	3100	0		TC	NVSUB
0135	REF	28	LAST	392	12,6205	0	3315	0		TC	PRENVBSY
0136	REF	20	LAST	392	12,6206	0	3136	0		TC	ENDIDLE
0137	REF	7	LAST	394	12,6207	0	7406	1		TC	ENDTEST
0138					12,6210	0	6211	0		TC	+1
0139	REF	32	LAST	393	12,6211	3	0616	0		XCH	DSPTM1
0140	REF	1			12,6212	5	1561	1		TS	TESTNO
0141	REF	1			12,6213	5	1570	1		TS	CALCDIR
0142	REF	22	LAST	393	12,6214	0	3362	0		TC	FREEDSP
0143	REF	5	LAST	380	12,6215	3	4502	1		CAF	QUARTER
0144	REF	8	LAST	370	12,6216	5	1316	1		TS	AZIMUTH
0145	REF	2	LAST	26	12,6217	5	1214	1		TS	GENPL +76D
0146	REF	12	LAST	367	12,6220	3	4475	0		CAF	SIX
0147	REF	1			12,6221	5	1231	0		TS	NBPOS
0148	REF	2	LAST	395	12,6222	1	1561	0		CCS	TESTNO
0149	REF	3	LAST	395	12,6223	5	1561	1		TS	TESTNO
0150					12,6224	0	6231	1		TC	+5
0151	REF	4	LAST	395	12,6225	5	1561	1		TS	TESTNO
0152	REF	1			12,6226	4	6365	0		CS	BURSTPOS
0153	REF	1			12,6227	5	1562	1		TS	SAVE
0154					12,6230	0	6233	0		TC	+3
0155	REF	2	LAST	395	12,6231	3	6365	1		CAF	BURSTPOS
0156	REF	2	LAST	395	12,6232	5	1562	1		TS	SAVE
0157	REF	5	LAST	395	12,6233	4	1561	0		CS	TESTNO
0158	REF	52	LAST	387	12,6234	6	5503	1		AD	TWO
0159	REF	1			12,6235	5	1566	0		TS	NEGCDU2
0160	REF	319	LAST	393	12,6236	1	0000	0		CCS	A
0161	REF	128	LAST	393	12,6237	3	4516	1		CAF	ONE
0162					12,6240	0	6243	1		TC	+3
0163					12,6241	0	6242	0		TC	+1
0164	REF	7	LAST	288	12,6242	3	4473	0		CAF	THREE
0165	REF	2	LAST	393	12,6243	5	1223	0		TS	POSITON
0166	REF	1			12,6244	0	6540	0		TC	STEVEIN

0167	REF	2	LAST	395	12,6245	4	1566	1	TORK	CS	NEGCDU2
0168					12,6246	4	0000	0		COM	
0169	REF	320	LAST	395	12,6247	1	0000	0		CCS	A
0170	REF	6	LAST	395	12,6250	2	1561	0		INDEX	TESTNO
0171	REF	6	LAST	206	12,6251	4	0047	0		CS	CDUX
0172					12,6252	0	6254	1		TC	+2
0173	REF	7	LAST	395	12,6253	4	0047	0		CS	CDUX
0174	REF	1			12,6254	5	1565	0		TS	NEGCDU1
0175	REF	7	LAST	395	12,6255	4	1561	0		CS	TESTNO
0176					12,6256	4	0000	0		COM	
0177	REF	8	LAST	395	12,6257	6	1561	1		AD	TESTNO
0178	REF	1			12,6260	5	1567	1		TS	LOCNO
0179	REF	1			12,6261	3	6366	1		CAF	ITERNO

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0180	REF	1	12,6262	5 1571 0	BLOGS	TS	BUBBLE	
0181			12,6263	2 0017 0		INHINT		
0182	REF	1	12,6264	3 6367 0		CAF	TIMEINCR	
0183	REF	53 LAST 394	12,6265	0 2173 0		TC	WAITLIST	
0184	REF	1	12,6266	24313 0		CADR	WAKEUP	
0185			12,6267	2 0016 1		RELINT		
0186	REF	3 LAST 367	12,6270	3 4477 1		CAF	FIVE	
0187	REF	3 LAST 289	12,6271	5 1563 0		TS	PLOW	
0188	REF	131 LAST 394	12,6272	3 5501 0		CAF	ZERO	
0189	REF	4 LAST 396	12,6273	2 1563 1		INDEX	PLOW	
0190	REF	1	12,6274	5 1234 0		TS	GYROD	
0191	REF	5 LAST 396	12,6275	1 1563 1		CCS	PLOW	
0192			12,6276	0 6271 0		TC	-5	
0193	REF	3 LAST 395	12,6277	4 1562 0		CS	SAVE	
0194			12,6300	4 0000 0		COM		
0195	REF	2 LAST 395	12,6301	2 1567 0		INDEX	LOCNO	
0196	REF	2 LAST 396	12,6302	5 1235 1		TS	GYROD +1	
0197	REF	1	12,6303	3 6370 0		CAF	LLGYROD	
0198	REF	68 LAST 394	12,6304	0 5654 0		TC	BANKCALL	
0199	REF	2 LAST 221	12,6305	31347 0		CADR	GYROSPNT	
0200	REF	69 LAST 396	12,6306	0 5654 0		TC	BANKCALL	
0201	REF	18 LAST 393	12,6307	30331 0		CADR	IMUSTALL	
0202	REF	8 LAST 395	12,6310	0 7406 1		TC	ENDTEST	
0203	REF	1	12,6311	3 6371 1		CAF	WAKECADR	
0204	REF	12 LAST 394	12,6312	0 2127 1		TC	JOBSLEEP	
0205	REF	2 LAST 396	12,6313	3 6371 1	WAKEUP	CAF	WAKECADR	
0206	REF	10 LAST 394	12,6314	0 2060 0		TC	JOBWAKE	
0207	REF	39 LAST 394	12,6315	0 2256 1		TC	TASKOVER	
0208	REF	2 LAST 396	12,6316	1 1571 1	WAKE	CCS	BUBBLE	
0209	REF	1	12,6317	0 6262 1		TC	BLOGS	
0210	REF	3 LAST 395	12,6320	4 1566 1		CS	NEGCDU2	
0211			12,6321	4 0000 0		COM		
0212	REF	321 LAST 395	12,6322	1 0000 0		CCS	A	
0213	REF	9 LAST 395	12,6323	2 1561 0		INDEX	TESTNO	
0214	REF	8 LAST 395	12,6324	4 0047 0		CS	CDUX	
0215			12,6325	0 6327 1		TC	+2	
0216	REF	9 LAST 396	12,6326	4 0047 0		CS	CDUX	
0217	REF	4 LAST 396	12,6327	5 1566 0		TS	NEGCDU2	
0218	REF	2 LAST 395	12,6330	1 1570 0		CCS	CALCDIR	DONE TO INSURE PROPER SIGN
0219	REF	2 LAST 395	12,6331	4 1565 1		CS	NEGCDU1	
0220			12,6332	0 6336 1		TC	+4	
0221	REF	5 LAST 396	12,6333	4 1566 1		CS	NEGCDU2	
0222	REF	6 LAST 396	12,6334	5 1566 0		TS	NEGCDU2	
0223			12,6335	0 6337 0		TC	+2	
0224	REF	3 LAST 396	12,6336	5 1565 0		TS	NEGCDU1	
0225			12,6337	2 0017 0		INHINT		
0226	REF	7 LAST 396	12,6340	4 1566 1		CS	NEGCDU2	
0227	REF	322 LAST 396	12,6341	4 0000 0		CS	A	
0228	REF	19 LAST 191	12,6342	5 0600 1		TS	ITEMP2	
0229	REF	4 LAST 396	12,6343	4 1565 1		CS	NEGCDU1	

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0230	REF	70	LAST	396	12,6344	0	5654	0	TC	BANKCALL
0231	REF	3	LAST	171	12,6345		21410	1	CADR	2SCOMDIF
0232					12,6346	2	0016	1	RELINT	
0233	REF	3	LAST	289	12,6347	5	1564	1	TS	CUSSANG
0234					12,6350	2	5777	1	EXTEND	
0235	REF	4	LAST	396	12,6351	4	4477	0	MP	FIVE
0236	REF	57	LAST	388	12,6352	4	0003	0	CS	LP
0237	REF	33	LAST	395	12,6353	5	0616	0	TS	DSPTM1
0238	REF	16	LAST	358	12,6354	0	3302	0	TC	GRABDSP
0239	REF	16	LAST	358	12,6355	0	3310	0	TC	PREGBSY
0240	REF	71	LAST	397	12,6356	0	5654	0	TC	BANKCALL
0241	REF	5	LAST	365	12,6357		14000	1	CADR	FLASHON
0242	REF	1			12,6360	3	7745	0	CAF	V07N30E
0243	REF	33	LAST	395	12,6361	0	3100	0	TC	NVSUB
0244	REF	29	LAST	395	12,6362	0	3315	0	TC	PRENVBSY
0245	REF	21	LAST	395	12,6363	0	3136	0	TC	ENDIDLE
0246	REF	9	LAST	396	12,6364	0	7406	1	TC	ENDTEST

0247					12,6365	00400	0	BURSTPOS	DEC	256
0248					12,6366	07777	1	ITERNO	DEC	4095
0249					12,6367	00030	1	TIMEINCR	DEC	24
0250	REF	3	LAST	396	12,6370	01235	1	LLGYROD	ADRES	GYROD +1
0251	REF	1			12,6371	24316	0	WAKECADR	CADR	WAKE

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R0252 THIS IS A ROUGH CHECK PROGRAM FOR THE IMU GYROs AND ACCELEROMETERS

0253	REF	6	LAST	395	12,6372	3	4502	1	IMUCHK	CAF	QUARTER	
0254	REF	9	LAST	395	12,6373	5	1316	1		TS	AZIMUTH	
0255	REF	23	LAST	395	12,6374	0	3362	0		TC	FREEDSP	
0256	REF	132	LAST	396	12,6375	3	5501	0		CAF	ZERO	
0257	REF	10	LAST	398	12,6376	5	1317	0		TS	AZIMUTH +1	
0258	REF	13	LAST	395	12,6377	3	4475	0		CAF	SIX	
0259	REF	2	LAST	395	12,6400	5	1231	0		TS	NBPOS	
0260	REF	18	LAST	263	12,6401	3	4513	1		CAF	BIT4	
0261	REF	3	LAST	395	12,6402	5	1223	0		TS	POSITON	
0262	REF	323	LAST	396	12,6403	4	0000	0		CS	A	
0263	REF	3	LAST	395	12,6404	5	1214	1		TS	GENPL +76D	
0264	REF	2	LAST	395	12,6405	0	6540	0		TC	STEVEIN	
0265	REF	72	LAST	397	12,6406	0	5654	0	IMUCHKR	TC	BANKCALL	CHECKS COARSE ALIGN AND GYRO TORQUING
0266	REF	2	LAST	243	12,6407		30205	0		CADR	IMULOCK	CHECKS ALL MODE SWITCHING
0267	REF	73	LAST	398	12,6410	0	5654	0		TC	BANKCALL	
0268	REF	19	LAST	396	12,6411		30331	0		CADR	IMUSTALL	
0269	REF	10	LAST	397	12,6412	0	7406	1		TC	ENDTEST	
0270	REF	74	LAST	398	12,6413	0	5654	0		TC	BANKCALL	
0271	REF	2	LAST	245	12,6414		30216	1		CADR	IMUREENT	
0272	REF	75	LAST	398	12,6415	0	5654	0		TC	BANKCALL	
0273	REF	20	LAST	398	12,6416		30331	0		CADR	IMUSTALL	
0274	REF	11	LAST	398	12,6417	0	7406	1		TC	ENDTEST	
0275	REF	76	LAST	398	12,6420	0	5654	0		TC	BANKCALL	
0276	REF	4	LAST	393	12,6421		30143	1		CADR	IMUFINE	
0277	REF	133	LAST	398	12,6422	3	5501	0		CAF	ZERO	
0278	REF	4	LAST	394	12,6423	5	0044	1		TS	PIPAX	
0279	REF	8	LAST	394	12,6424	5	0045	0		TS	PIPAY	
0280	REF	4	LAST	394	12,6425	5	0046	0		TS	PIPAZ	
0281	REF	77	LAST	398	12,6426	0	5654	0		TC	BANKCALL	
0282	REF	21	LAST	398	12,6427		30331	0		CADR	IMUSTALL	
0283	REF	12	LAST	398	12,6430	0	7406	1		TC	ENDTEST	
0284	REF	129	LAST	395	12,6431	3	4516	1		CAF	ONE	
0285	REF	2	LAST	26	12,6432	5	1224	1		TS	RESULTCT	
0286	REF	4	LAST	398	12,6433	5	1223	0		TS	POSITON	
0287	REF	53	LAST	395	12,6434	3	5503	1	IMUCHK1	CAF	TWO	MEASURE TIME OF OCCURRENCE OF EACH
0288	REF	3	LAST	394	12,6435	5	1221	1	IMUCHK2	TS	PIPINDEX	PIP PULSE. ALSO STORE VELOCITY
0289					12,6436	2	0017	0		INHINT		
0290	REF	3	LAST	394	12,6437	0	6613	0		TC	CHECKG	
0291	REF	9	LAST	398	12,6440	4	0045	1		CS	PIPAY	
0292	REF	324	LAST	398	12,6441	4	0000	0		CS	A	
0293	REF	5	LAST	398	12,6442	2	1223	1		INDEX	POSITON	
0294	REF	1			12,6443	5	1300	0		TS	DATAPL +30D	
0295	REF	5	LAST	398	12,6444	4	0046	1		CS	PIPAZ	

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0296	REF	325	LAST	398	12,6445	4	0000	0	CS	A
0297	REF	6	LAST	398	12,6446	2	1223	1	INDEX	POSITON
0298	REF	2	LAST	398	12,6447	5	1302	1	TS	DATAPL +32D
0299					12,6450	2	0016	1	RELINT	
0300	REF	1			12,6451	0	7235	1	TC	DATA1D1
0301	REF	3	LAST	398	12,6452	3	1224	1	XCH	RESULTCT
0302	REF	5	LAST	397	12,6453	6	4477	1	AD	FIVE
0303	REF	4	LAST	399	12,6454	5	1224	1	TS	RESULTCT
0304	REF	4	LAST	398	12,6455	1	1221	0	CCS	PIPINDEX
0305	REF	1			12,6456	0	6435	0	TC	IMUCHK2
0306	REF	7	LAST	399	12,6457	1	1223	1	CCS	POSITON
0307					12,6460	0	6462	1	TC	+2
0308	REF	1			12,6461	0	6470	1	TC	COMPUT
0309	REF	8	LAST	399	12,6462	5	1223	0	TS	POSITON
0310	REF	8	LAST	263	12,6463	3	4511	0	CAF	BIT6
0311	REF	1			12,6464	0	7355	0	TC	WARTMAL
0312	REF	1			12,6465	1	1220	1	CCS	COUNTPL
0313	REF	1			12,6466	0	7377	0	TC	WARTMAL2
0314	REF	1			12,6467	0	6434	1	TC	IMUCHK1

0315	REF	134	LAST	398	12,6470	3	5501	0	COMPUT	CAF	ZERO	CALC V1XV2 ANDROOT(GX)2+(GY)2+(GZ)2
0316	REF	3	LAST	399	12,6471	5	1242	1		TS	DATAPL	
0317	REF	4	LAST	399	12,6472	5	1247	1		TS	DATAPL +5	
0318	REF	5	LAST	399	12,6473	5	1254	0		TS	DATAPL +10D	
0319	REF	6	LAST	399	12,6474	3	1300	0		XCH	DATAPL +30D	
0320	REF	7	LAST	399	12,6475	5	1305	0		TS	DATAPL +35D	
0321	REF	135	LAST	399	12,6476	3	5501	0		CAF	ZERO	
0322	REF	8	LAST	399	12,6477	3	1302	1		XCH	DATAPL +32D	
0323	REF	9	LAST	399	12,6500	5	1307	1		TS	DATAPL +37D	
0324	REF	54	LAST	398	12,6501	3	5503	1		CAF	TWO	
0325	REF	10	LAST	399	12,6502	5	1261	0		TS	DATAPL +15D	
0326	REF	11	LAST	399	12,6503	5	1266	1		TS	DATAPL +20D	
0327	REF	12	LAST	399	12,6504	5	1273	0		TS	DATAPL +25D	
0328	REF	13	LAST	399	12,6505	5	1304	1		TS	DATAPL +34D	
0329	REF	14	LAST	399	12,6506	5	1306	0		TS	DATAPL +36D	

0330	REF	78	LAST	398	12,6507	0	5654	0		TC	BANKCALL	
0331	REF	1			12,6510		71365	1		CADR	CHKCALC	

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0332	REF	136	LAST	399	12,6511	3 5501 0	GYDRFT	CAF	ZERO	
0333	REF	1			12,6512	5 1232 0		TS	TESTNDX	
0334	REF	9	LAST	399	12,6513	3 4511 0	SFTSTIN	CAF	BIT6	PIP SCALE FACTOR TEST ENTRY
0335	REF	3	LAST	398	12,6514	5 1231 0		TS	NBPOS	
0336	REF	137	LAST	400	12,6515	3 5501 0		CAF	ZERO	
0337	REF	4	LAST	398	12,6516	5 1214 1		TS	GENPL +76D	
0338	REF	130	LAST	398	12,6517	3 4516 1		CAF	ONE	
0339	REF	9	LAST	399	12,6520	5 1223 0		TS	POSITON	
0340	REF	79	LAST	399	12,6521	0 5654 0	GYRDRFT1	TC	BANKCALL	
0341	REF	2	LAST	392	12,6522	70515 1		CADR	LATAZCHK	
0342	REF	1			12,6523	0 7226 0	GYRDRFT2	TC	SHOWLD	LOAD NAVBASE TILT ANGLE IN DEGREES
0343	REF	80	LAST	400	12,6524	0 5654 0		TC	BANKCALL	
0344	REF	1			12,6525	25205 1		CADR	SHOW	
0345	REF	24	LAST	398	12,6526	0 3362 0		TC	FREEDSP	
0346	REF	4	LAST	400	12,6527	1 1231 1		CCS	NBPOS	NUMBER IN POSITON.FOR VERTICAL DRIFT
0347	REF	1			12,6530	0 6536 1		TC	LTNDX+	TEST IN LAB LOAD + NUMBER IN TESTNDX
0348	REF	1			12,6531	0 6534 0		TC	LTNDX0	
0349	REF	4	LAST	287	12,6532	3 3232 1		CAF	TEN	
0350					12,6533	0 6537 0		TC	+4	
0351	REF	14	LAST	398	12,6534	3 4475 0	LTNDX0	CAF	SIX	
0352					12,6535	0 6537 0		TC	+2	
0353	REF	138	LAST	400	12,6536	3 5501 0	LTNDX+	CAF	ZERO	
0354	REF	5	LAST	400	12,6537	5 1231 0		TS	NBPOS	
0355	REF	139	LAST	400	12,6540	4 5501 1	STEVEIN	CS	ZERO	
0356	REF	27	LAST	392	12,6541	5 0677 1		TS	CDUIND	
0357	REF	326	LAST	399	12,6542	4 0000 0		CS	A	
0358	REF	1			12,6543	5 1216 0		TS	LTSTNDX	
0359	REF	81	LAST	400	12,6544	0 5654 0		TC	BANKCALL	
0360	REF	4	LAST	392	12,6545	30000 1		CADR	IMUZERO	
0361	REF	82	LAST	400	12,6546	0 5654 0		TC	BANKCALL	
0362	REF	22	LAST	398	12,6547	30331 0		CADR	IMUSTALL	
0363	REF	13	LAST	398	12,6550	0 7406 1		TC	ENDTEST	
0364	REF	83	LAST	400	12,6551	0 5654 0		TC	BANKCALL	
0365	REF	1			12,6552	71131 1		CADR	NBPOSPL	
0366	REF	84	LAST	400	12,6553	0 5654 0	POSGMBL	TC	BANKCALL	
0367	REF	2	LAST	393	12,6554	70444 1		CADR	PUTPOSX	
0368	REF	85	LAST	400	12,6555	0 5654 0		TC	BANKCALL	
0369	REF	5	LAST	398	12,6556	30143 1		CADR	IMUFINE	
0370	REF	86	LAST	400	12,6557	0 5654 0		TC	BANKCALL	
0371	REF	23	LAST	400	12,6560	30331 0		CADR	IMUSTALL	
0372	REF	14	LAST	400	12,6561	0 7406 1		TC	ENDTEST	
0373	REF	10	LAST	396	12,6562	4 0047 0		CS	CDUX	
0374	REF	327	LAST	400	12,6563	4 0000 0		CS	A	

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0375	REF	1		12,6564	2 7755 0		INDEX	FLNDX12	FIXED BY *UNEEDA* DEBUGGING SERVICE
0376				12,6565	5 0006 1		TS	6	
0377	REF	5 LAST 206		12,6566	4 0050 0		CS	CDUY	
0378	REF	328 LAST 400		12,6567	4 0000 0		CS	A	
0379	REF	2 LAST 401		12,6570	2 7755 0		INDEX	FLNDX12	FIXED BY *UNEEDA* DEBUGGING SERVICE
0380				12,6571	5 0002 0		TS	2	
0381	REF	5 LAST 206		12,6572	4 0051 1		CS	CDUZ	
0382	REF	329 LAST 401		12,6573	4 0000 0		CS	A	
0383	REF	3 LAST 401		12,6574	2 7755 0		INDEX	FLNDX12	FIXED BY *UNEEDA* DEBUGGING SERVICE
0384				12,6575	5 0004 0		TS	4	
0385	REF	87 LAST 400		12,6576	0 5654 0		TC	BANKCALL	READ CDU ANGLES AND COMPLETE
0386	REF	1		12,6577	70732 0		CADR	FALNE1	
0387	REF	5 LAST 400		12,6600	1 1214 0	FALNED	CCS	GENPL +76D	
0388	REF	1		12,6601	0 6245 1		TC	TORK	
0389				12,6602	0 6604 0		TC	+2	
0390	REF	1		12,6603	0 6406 0		TC	IMUCHKR	
0391	REF	88 LAST 401		12,6604	0 5654 0		TC	BANKCALL	
0392	REF	1		12,6605	71576 0		CADR	FALNED1	

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0393	REF	1		12,6606	3 7746 0	ACCELTST	CAF	NINTHOU	
0394	REF	1		12,6607	5 1215 0		TS	TESTTIME	ACCELEROMETER OUTPUT TO GRAVITY
0395	REF	140	LAST 400	12,6610	4 5501 1		CS	ZERO	
0396	REF	2	LAST 400	12,6611	5 1232 0		TS	TESTNDX	
0397	REF	1		12,6612	0 6513 0		TC	SFTSTIN	

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0398	REF	210	LAST	388	12,6613	3	0001	0	CHECKG	XCH	Q	PIP PULSE CATCH ROUTINE
0399	REF	3	LAST	257	12,6614	3	1225	0		XCH	QPLACE	
0400					12,6615	2	0016	1	CHECKG1	RELINT		
0401	REF	28	LAST	393	12,6616	1	0215	0		CCS	NEWJOB	
0402	REF	5	LAST	393	12,6617	0	2101	0		TC	CHANG1	
0403					12,6620	2	0017	0		INHINT		
0404	REF	141	LAST	402	12,6621	3	5501	0		CAF	ZERO	
0405	REF	5	LAST	399	12,6622	2	1221	0		INDEX	PIPINDEX	
0406	REF	5	LAST	398	12,6623	3	0044	1		XCH	PIPAX	
0407	REF	2	LAST	394	12,6624	5	1230	1		TS	STOREPL	
0408	REF	3	LAST	403	12,6625	1	1230	0		CCS	STOREPL	
0409	REF	1			12,6626	0	6632	0		TC	CHECKP	
0410	REF	1			12,6627	0	6676	0		TC	RESTORE1	
0411	REF	1			12,6630	0	6645	0		TC	CHECKM	
0412	REF	2	LAST	403	12,6631	0	6676	0		TC	RESTORE1	
0413	REF	10	LAST	400	12,6632	3	4511	0	CHECKP	CAF	BIT6	LOOKS FOR ONE MORE PULSE
0414	REF	1			12,6633	5	1222	1	CHECKP1	TS	PIPANO	
0415	REF	6	LAST	403	12,6634	2	1221	0		INDEX	PIPINDEX	
0416	REF	6	LAST	403	12,6635	1	0044	0		CCS	PIPAX	
0417	REF	1			12,6636	0	6660	1		TC	CHECKG3	
0418					12,6637	0	6642	1		TC	+3	
0419	REF	3	LAST	403	12,6640	0	6676	0		TC	RESTORE1	
0420					12,6641	0	6642	1		TC	+1	
0421	REF	2	LAST	403	12,6642	1	1222	0		CCS	PIPANO	
0422	REF	1			12,6643	0	6633	1		TC	CHECKP1	
0423	REF	4	LAST	403	12,6644	0	6676	0		TC	RESTORE1	
0424	REF	11	LAST	403	12,6645	3	4511	0	CHECKM	CAF	BIT6	LOOKS FOR ONE MORE INUS
0425	REF	3	LAST	403	12,6646	5	1222	1	CHECKM1	TS	PIPANO	
0426	REF	7	LAST	403	12,6647	2	1221	0		INDEX	PIPINDEX	
0427	REF	7	LAST	403	12,6650	1	0044	0		CCS	PIPAX	
0428	REF	5	LAST	403	12,6651	0	6676	0		TC	RESTORE1	
0429					12,6652	0	6655	1		TC	+3	
0430	REF	2	LAST	403	12,6653	0	6660	1		TC	CHECKG3	
0431					12,6654	0	6655	1		TC	+1	
0432	REF	4	LAST	403	12,6655	1	1222	0		CCS	PIPANO	
0433	REF	1			12,6656	0	6646	0		TC	CHECKM1	
0434	REF	6	LAST	403	12,6657	0	6676	0		TC	RESTORE1	
0435	REF	2	LAST	394	12,6660	0	7277	1	CHECKG3	TC	TPTIME	
0436	REF	19	LAST	398	12,6661	3	4513	1		CAF	BIT4	
0437	REF	5	LAST	403	12,6662	5	1222	1	CHECKG5	TS	PIPANO	
0438	REF	8	LAST	403	12,6663	2	1221	0		INDEX	PIPINDEX	
0439	REF	8	LAST	403	12,6664	1	0044	0		CCS	PIPAX	
0440					12,6665	0	6671	1		TC	+4	
0441	REF	7	LAST	403	12,6666	0	6676	0		TC	RESTORE1	
0442					12,6667	0	6671	1		TC	+2	
0443	REF	8	LAST	403	12,6670	0	6676	0		TC	RESTORE1	

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0444	REF	6	LAST 403	12,6671	1	1222 0		CCS	PIPANO
0445	REF	1		12,6672	0	6662 0		TC	CHECKG5
0446	REF	1		12,6673	0	6700 0	NREAD	TC	RESTORE
0447	REF	4	LAST 403	12,6674	5	1230 1		TS	STOREPL
0448	REF	4	LAST 403	12,6675	0	1225 0		TC	QPLACE
0449	REF	2	LAST 404	12,6676	0	6700 0	RESTORE1	TC	RESTORE
0450	REF	1		12,6677	0	6615 0		TC	CHECKG1
0451	REF	5	LAST 404	12,6700	3	1230 1	RESTORE	XCH	STOREPL
0452	REF	9	LAST 403	12,6701	2	1221 0		INDEX	PIPINDEX
0453	REF	9	LAST 403	12,6702	6	0044 1		AD	PIPAX
0454	REF	10	LAST 404	12,6703	2	1221 0		INDEX	PIPINDEX
0455	REF	10	LAST 404	12,6704	5	0044 1		TS	PIPAX
0456	REF	211	LAST 403	12,6705	0	0001 0		TC	Q

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0457				12,6706	2 0017 0	WEIKPL	INHINT
0458	REF	4	LAST 398	12,6707	0 6613 0		TC CHECKG
0459				12,6710	2 0016 1		RELINT
0460	REF	9	LAST 224	12,6711	3 5502 0		CAF FOUR
0461	REF	5	LAST 399	12,6712	6 1224 1		AD RESULTCT
0462	REF	6	LAST 405	12,6713	5 1224 1		TS RESULTCT
0463	REF	2	LAST 399	12,6714	0 7235 1		TC DATA1D1
0464	REF	2	LAST 399	12,6715	1 1220 1		CCS COUNTPL
0465	REF	1		12,6716	0 6734 1		TC DOSCTEST
0466	REF	89	LAST 401	12,6717	0 5654 0		TC BANKCALL
0467	REF	1		12,6720	71207 1		CADR RESULTS

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0468	REF	3	LAST	402	12,6721	1	1232	1	TSTJUMP	CCS	TESTNDX	
0469	REF	1			12,6722	0	6751	1		TC	LABTEST	
0470	REF	1			12,6723	0	7416	0		TC	SCRTEST	
0471	REF	2	LAST	406	12,6724	0	6751	1		TC	LABTEST	
0472	REF	131	LAST	400	12,6725	3	4516	1	PIPTST	CAF	ONE	MEASURE PIP PULSE RATE FOR 90 SEC.
0473	REF	3	LAST	405	12,6726	5	1220	0		TS	COUNTPL	
0474	REF	142	LAST	403	12,6727	3	5501	0		CAF	ZERO	
0475	REF	11	LAST	404	12,6730	2	1221	0		INDEX	PIPINDEX	
0476	REF	11	LAST	404	12,6731	5	0044	1		TS	PIPAX	
0477	REF	7	LAST	405	12,6732	5	1224	1		TS	RESULTCT	
0478	REF	1			12,6733	0	6706	0		TC	WEIKPL	
0479	REF	4	LAST	406	12,6734	5	1220	0	DOSCTEST	TS	COUNTPL	HORIZ DRIFT TEST SET UP TO
0480					12,6735	2	0017	0		INHINT		READ EAST PIP FOUR TIMES
0481	REF	2	LAST	402	12,6736	4	1215	1		CS	TESTTIME	
0482	REF	330	LAST	401	12,6737	4	0000	0		CS	A	
0483	REF	54	LAST	396	12,6740	0	2173	0		TC	WAITLIST	
0484	REF	1			12,6741		24745	1		CADR	CARRYON	
0485					12,6742	2	0016	1		RELINT		
0486	REF	1			12,6743	3	6750	0		CAF	CONCADR	
0487	REF	13	LAST	396	12,6744	0	2127	1		TC	JOBSLEEP	
0488	REF	2	LAST	406	12,6745	3	6750	0	CARRYON	CAF	CONCADR	
0489	REF	11	LAST	396	12,6746	0	2060	0		TC	JOBWAKE	
0490	REF	40	LAST	396	12,6747	0	2256	1		TC	TASKOVER	
0491	REF	2	LAST	406	12,6750		24706	0	CONCADR	CADR	WEIKPL	

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										SET UP TO MEASURE VERTICAL DRIFT	
0492	REF	2	LAST	400	12,6751	1	1216	1	LABTEST	CCS	LTSTNDX
0493	REF	1			12,6752	0	7066	0		TC	CDUD
0494	REF	143	LAST	406	12,6753	3	5501	0		CAF	ZERO
0495	REF	10	LAST	362	12,6754	5	1424	1		TS	XSM
0496	REF	11	LAST	407	12,6755	5	1432	0		TS	XSM +6
0497	REF	12	LAST	407	12,6756	5	1440	0		TS	XSM +120
0498	REF	12	LAST	403	12,6757	3	4511	0	CDOCK	CAF	BIT6
0499	REF	6	LAST	404	12,6760	5	1230	1	CDOCK1	TS	STOREPL
0500	REF	1			12,6761	0	7061	1		TC	STOPHOR1
0501	REF	7	LAST	407	12,6762	1	1230	0		CCS	STOREPL
0502	REF	1			12,6763	0	6760	0		TC	CDOCK1
0503	REF	144	LAST	407	12,6764	3	5501	0		CAF	ZERO
0504	REF	1			12,6765	2	1233	0		INDEX	CDUNDX
0505	REF	11	LAST	400	12,6766	5	0047	1		TS	CDUX
0506	REF	13	LAST	407	12,6767	3	4511	0	CDOCK2	CAF	BIT6
0507	REF	8	LAST	407	12,6770	5	1230	1	CDOCK3	TS	STOREPL
0508	REF	2	LAST	407	12,6771	2	1233	0		INDEX	CDUNDX
0509	REF	12	LAST	407	12,6772	1	0047	0		CCS	CDUX
0510	REF	1			12,6773	0	7003	0		TC	CDOCK4
0511					12,6774	0	6777	0		TC	+3
0512	REF	2	LAST	407	12,6775	0	6760	0		TC	CDOCK1
0513	REF	2	LAST	407	12,6776	0	7003	0		TC	CDOCK4
0514	REF	9	LAST	407	12,6777	1	1230	0		CCS	STOREPL
0515	REF	1			12,7000	0	6770	1		TC	CDOCK3
0516	REF	2	LAST	407	12,7001	0	7061	1		TC	STOPHOR1
0517	REF	1			12,7002	0	6767	1		TC	CDOCK2
0518	REF	5	LAST	374	12,7003	0	2676	1	CDOCK4	TC	READTIME
0519					12,7004	2	0016	1		RELINT	
0520	REF	26	LAST	374	12,7005	4	0572	0		CS	RUPTSTOR
0521	REF	15	LAST	399	12,7006	5	1242	1		TS	DATAPL
0522	REF	27	LAST	407	12,7007	4	0573	1		CS	RUPTSTOR +1
0523	REF	16	LAST	407	12,7010	5	1243	0		TS	DATAPL +1
0524	REF	8	LAST	395	12,7011	3	4473	0		CAF	THREE
0525	REF	10	LAST	407	12,7012	5	1230	1	CDOCK5	TS	STOREPL
0526	REF	3	LAST	407	12,7013	0	7061	1		TC	STOPHOR1
0527	REF	11	LAST	407	12,7014	1	1230	0		CCS	STOREPL
0528	REF	1			12,7015	0	7012	0		TC	CDOCK5
0529	REF	3	LAST	407	12,7016	2	1233	0		INDEX	CDUNDX
0530	REF	13	LAST	407	12,7017	1	0047	0		CCS	CDUX
0531	REF	1			12,7020	0	7024	0		TC	POSPLS
0532	REF	3	LAST	407	12,7021	0	6760	0		TC	CDOCK1
0533	REF	4	LAST	407	12,7022	0	6760	0		TC	CDOCK1
0534	REF	1			12,7023	0	7032	1		TC	NEGPLS
0535	REF	4	LAST	406	12,7024	4	1232	1	POSPLS	CS	TESTNDX
0536	REF	331	LAST	406	12,7025	1	0000	0		CCS	A
0537	REF	1			12,7026	0	7101	0		TC	LONGTST
0538					12,7027	3	0000	1		NOOP	

INITIALIZES VERTICAL DRIFT TEST

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0539	REF	1		12,7030	4 7747 0		CS	SXTTR
0540				12,7031	0 7037 1		TC	+6
0541	REF	5	LAST 407	12,7032	4 1232 1	NEGPLS	CS	TESTNDX
0542	REF	332	LAST 407	12,7033	1 0000 0		CCS	A
0543	REF	2	LAST 407	12,7034	0 7101 0		TC	LONGTST
0544				12,7035	3 0000 1		NOOP	
0545	REF	2	LAST 408	12,7036	3 7747 1		CAF	SXTTR
0546	REF	4	LAST 407	12,7037	2 1233 0		NDX	CDUNDX
0547	REF	14	LAST 407	12,7040	5 0047 1		TS	CDUX

0548	REF	4	LAST 407	12,7041	0 7061 1	CDUCK6	TC	STOPHOR1
0549	REF	14	LAST 407	12,7042	3 4511 0		CAF	BIT6
0550	REF	12	LAST 407	12,7043	5 1230 1	CDUCK7	TS	STOREPL
0551	REF	5	LAST 408	12,7044	2 1233 0		INDEX	CDUNDX
0552	REF	15	LAST 408	12,7045	1 0047 0		CCS	CDUX
0553				12,7046	0 7052 1		TC	+4
0554	REF	1		12,7047	0 7055 0		TC	CDUD1
0555				12,7050	0 7052 1		TC	+2
0556	REF	2	LAST 408	12,7051	0 7055 0		TC	CDUD1
0557	REF	13	LAST 408	12,7052	1 1230 0		CCS	STOREPL
0558	REF	1		12,7053	0 7043 1		TC	CDUCK7
0559	REF	1		12,7054	0 7041 0		TC	CDUCK6

0560	REF	7	LAST 286	12,7055	3 4510 1	CDUD1	CAF	BIT7
0561	REF	6	LAST 408	12,7056	2 1233 0		INDEX	CDUNDX
0562	REF	16	LAST 408	12,7057	5 0047 1		TS	CDUX
0563	REF	2	LAST 407	12,7060	0 7066 0		TC	CDUD

0564	REF	212	LAST 404	12,7061	3 0001 0	STOPHOR1	XCH	Q
0565	REF	5	LAST 404	12,7062	5 1225 0		TS	QPLACE
0566	REF	90	LAST 405	12,7063	0 5654 0		TC	BANKCALL
0567	REF	2	LAST 394	12,7064	71515 0		CADR	STOPHOR
0568	REF	6	LAST 408	12,7065	0 1225 0		TC	QPLACE

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0569	REF	7	LAST	408	12,7066	2	1233	0	CDUD	INDEX	CDUNDX
0570	REF	17	LAST	408	12,7067	3	0047	1		XCH	CDUX
0571	REF	6	LAST	401	12,7070	5	1215	0		TS	GENPL +77D
0572	REF	6	LAST	407	12,7071	0	2676	1		TC	READTIME
0573					12,7072	2	0016	1		RELINT	
0574	REF	28	LAST	407	12,7073	4	0572	0		CS	RUPTSTOR
0575	REF	17	LAST	407	12,7074	5	1244	1		TS	DATAPL +2
0576	REF	29	LAST	409	12,7075	4	0573	1		CS	RUPTSTOR +1
0577	REF	18	LAST	409	12,7076	5	1245	0		TS	DATAPL +3
0578	REF	91	LAST	408	12,7077	0	5654	0		TC	BANKCALL
0579	REF	1			12,7100		71241	0		CADR	CDUCALC

0580	REF	1			12,7101	3	7757	0	LONGTST	CAF	DECX	CHANGED BY MR. FIXIT. VERTICAL ERECTION FOR 14480 SECONDS
0581	REF	14	LAST	408	12,7102	5	1230	1		TS	STOREPL	
0582	REF	132	LAST	406	12,7103	3	4516	1		CAF	ONE	
0583	REF	3	LAST	407	12,7104	5	1216	0		TS	LTSTNDX	
0584	REF	92	LAST	409	12,7105	0	5654	0		TC	BANKCALL	
0585	REF	1			12,7106		71614	1		CADR	FRECT +2	
0586	REF	213	LAST	408	12,7107	3	0001	0	DSPYLOAD	XCH	Q	
0587	REF	7	LAST	408	12,7110	5	1225	0		TS	QPLACE	
0588					12,7111	0	7113	0		TC	+2	
0589	REF	3	LAST	394	12,7112	5	1224	1		TS	NDXCTR	
0590	REF	4	LAST	409	12,7113	2	1224	0		INDEX	NDXCTR	
0591	REF	1			12,7114	4	1432	1		CS	YSM	
0592					12,7115	4	0000	0		COM		
0593	REF	34	LAST	397	12,7116	5	0616	0		TS	DSPTM1	
0594	REF	5	LAST	409	12,7117	2	1224	0		INDEX	NDXCTR	
0595	REF	2	LAST	409	12,7120	4	1433	0		CS	YSM +1	
0596					12,7121	4	0000	0		COM		
0597	REF	35	LAST	409	12,7122	5	0617	1		TS	DSPTM1 +1	
0598	REF	6	LAST	409	12,7123	4	1224	0		CS	NDXCTR	
0599					12,7124	4	0000	0		COM		
0600	REF	1			12,7125	6	7152	0		AD	YSMCADR	
0601	REF	36	LAST	409	12,7126	5	0620	0		TS	DSPTM1 +2	
0602	REF	93	LAST	409	12,7127	0	5654	0		TC	BANKCALL	
0603	REF	6	LAST	397	12,7130		14000	1		CADR	FLASHON	
0604	REF	2	LAST	392	12,7131	3	7740	0		CAF	V05N30E	
0605	REF	34	LAST	397	12,7132	0	3100	0		TC	NVSUB	
0606	REF	30	LAST	397	12,7133	0	3315	0		TC	PRENVBSY	
0607	REF	2	LAST	397	12,7134	3	7745	0		CAF	V07N30E	
0608	REF	35	LAST	409	12,7135	0	3100	0		TC	NVSUB	
0609	REF	31	LAST	409	12,7136	0	3315	0		TC	PRENVBSY	
0610	REF	22	LAST	397	12,7137	0	3136	0		TC	ENDIDLE	WAIT FOR DATA OR PROCEED
0611	REF	15	LAST	400	12,7140	0	7406	1		TC	ENDTEST	
0612					12,7141	0	7143	0		TC	+2	
0613	REF	2	LAST	393	12,7142	0	7113	0		TC	DSPYLOAD +4	RE-DISPLAY IF DATA LOADED
0614	REF	7	LAST	409	12,7143	4	1224	0		CS	NDXCTR	
0615	REF	5	LAST	400	12,7144	6	3232	1		AD	TEN	

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0616	REF	333	LAST	408	12,7145	1	0000	0	CCS	A
0617	REF	55	LAST	399	12,7146	3	5503	1	CAF	TWO
0618	REF	8	LAST	409	12,7147	6	1224	1	AD	NDXCTR
0619	REF	3	LAST	409	12,7150	0	7112	1	TC	DSPYLOAD +3
0620	REF	8	LAST	409	12,7151	0	1225	0	TC	QPLACE
0621	REF	3	LAST	409	12,7152	01432	0	YSMCADR	CADR	YSM

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0622	REF	5	LAST	228	12,7153	0	5706	0	LATAZCK1	TC	MAKECADR
0623	REF	1			12,7154	5	1574	0		TS	RETBB
0624	REF	2	LAST	392	12,7155	0	7162	0		TC	CHECKLD
0625					12,7156		00661	0		OCT	00661
0626	REF	16	LAST	409	12,7157	0	7406	1		TC	ENDTEST
0627	REF	2	LAST	411	12,7160	3	1574	0		XCH	RETBB
0628	REF	4	LAST	257	12,7161	0	5723	1		TC	BANKJUMP
0629	REF	214	LAST	409	12,7162	3	0001	0	CHECKLD	XCH	Q
0630	REF	1			12,7163	5	1310	1		TS	QPLAC
0631	REF	2	LAST	411	12,7164	2	1310	0		INDEX	QPLAC
0632	REF	334	LAST	410	12,7165	3	0000	1		XCH	A
0633	REF	36	LAST	409	12,7166	0	3100	0		TC	NVSUB
0634	REF	1			12,7167	0	7202	0		TC	CHECKLD1
0635	REF	94	LAST	409	12,7170	0	5654	0		TC	BANKCALL
0636	REF	7	LAST	409	12,7171		14000	1		CADR	FLASHON
0637	REF	23	LAST	409	12,7172	0	3136	0		TC	ENDIDLE
0638					12,7173	0	7176	0		TC	+3
0639					12,7174	0	7200	1		TC	+4
0640	REF	3	LAST	411	12,7175	0	7164	0		TC	CHECKLD +2
0641	REF	3	LAST	411	12,7176	2	1310	0		INDEX	QPLAC
0642	REF	215	LAST	411	12,7177	0	0001	0		TC	Q
0643	REF	4	LAST	411	12,7200	2	1310	0		INDEX	QPLAC
0644					12,7201	0	0002	0		TC	2
0645	REF	1			12,7202	3	7204	0	CHECKLD1	CAF	CHECKLD2
0646	REF	4	LAST	365	12,7203	0	3320	0		TC	NVSUBUSY
0647	REF	4	LAST	411	12,7204		25164	0	CHECKLD2	CADR	CHECKLD +2

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0648	REF	6	LAST	411	12,7205	0	5706	0	SHOW	TC	MAKECADR
0649	REF	1			12,7206	5	1573	1		TS	RETAA
0650	REF	10	LAST	400	12,7207	4	1223	1	SHOW1	CS	POSITON
0651	REF	335	LAST	411	12,7210	4	0000	0		CS	A
0652	REF	4	LAST	241	12,7211	5	0623	0		TS	DSPTM2 +2
0653	REF	95	LAST	411	12,7212	0	5654	0		TC	BANKCALL
0654	REF	8	LAST	411	12,7213		14000	1		CADR	FLASHON
0655	REF	1			12,7214	3	7751	0		CAF	VB06N66
0656	REF	37	LAST	411	12,7215	0	3100	0		TC	NVSUB
0657	REF	32	LAST	409	12,7216	0	3315	0		TC	PRENVBSY
0658	REF	24	LAST	411	12,7217	0	3136	0		TC	ENDIDLE
0659	REF	17	LAST	411	12,7220	0	7406	1		TC	ENDTEST
0660					12,7221	0	7224	1		TC	+3
0661	REF	2	LAST	400	12,7222	0	7226	0		TC	SHOWLD
0662	REF	1			12,7223	0	7207	0		TC	SHOW1
0663	REF	2	LAST	412	12,7224	3	1573	1		XCH	RETAA
0664	REF	5	LAST	411	12,7225	0	5723	1		TC	BANKJUMP

0665	REF	6	LAST	400	12,7226	4	1231	1	SHOWLD	CS	NBPOS
0666	REF	336	LAST	412	12,7227	4	0000	0		CS	A
0667	REF	5	LAST	412	12,7230	5	0621	1		TS	DSPTM2
0668	REF	6	LAST	408	12,7231	4	1232	1		CS	TESTNDX
0669	REF	337	LAST	412	12,7232	4	0000	0		CS	A
0670	REF	6	LAST	412	12,7233	5	0622	1		TS	DSPTM2 +1
0671	REF	216	LAST	411	12,7234	0	0001	0		TC	Q

0672	REF	15	LAST	409	12,7235	4	1230	0	DATA1D1	CS	STOREPL
0673	REF	338	LAST	412	12,7236	4	0000	0		CS	A
0674	REF	8	LAST	406	12,7237	2	1224	0		INDEX	RESULTCT
0675	REF	19	LAST	409	12,7240	5	1242	1		TS	DATAPL
0676	REF	344	LAST	390	12,7241	4	0115	0		CS	MPAC
0677	REF	339	LAST	412	12,7242	4	0000	0		CS	A
0678	REF	9	LAST	412	12,7243	2	1224	0		INDEX	RESULTCT
0679	REF	20	LAST	412	12,7244	5	1243	0		TS	DATAPL +1
0680	REF	345	LAST	412	12,7245	4	0116	0		CS	MPAC +1
0681	REF	340	LAST	412	12,7246	4	0000	0		CS	A
0682	REF	10	LAST	412	12,7247	2	1224	0		INDEX	RESULTCT
0683	REF	21	LAST	412	12,7250	5	1244	1		TS	DATAPL +2
0684	REF	346	LAST	412	12,7251	4	0117	1		CS	MPAC +2
0685	REF	341	LAST	412	12,7252	4	0000	0		CS	A
0686	REF	11	LAST	412	12,7253	2	1224	0		INDEX	RESULTCT
0687	REF	22	LAST	412	12,7254	5	1245	0		TS	DATAPL +3

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0688 REF 217 LAST 412 12.7255 0 0001 0 TC Q

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0689	REF	96	LAST	412	12,7256	0 5654 0	FINISH	TC	BANKCALL
0690	REF	2	LAST	400	12,7257	25205 1		CADR	SHOW
0691	REF	15	LAST	408	12,7260	3 4511 0		CAF	BIT6
0692	REF	7	LAST	412	12,7261	5 1231 0		TS	NBPOS
0693	REF	133	LAST	409	12,7262	3 4516 1		CAF	ONE
0694	REF	11	LAST	412	12,7263	6 1223 0		AD	POSITON
0695	REF	12	LAST	414	12,7264	5 1223 0		TS	POSITON
0696	REF	13	LAST	414	12,7265	4 1223 1		CS	POSITON
0697	REF	1			12,7266	6 7752 0		AD	DEC11
0698	REF	342	LAST	412	12,7267	1 0000 0		CCS	A
0699					12,7270	0 7272 1		TC	+2
0700	REF	18	LAST	412	12,7271	0 7406 1		TC	ENDTEST
0701					12,7272	2 0017 0		INHINT	
0702	REF	5	LAST	349	12,7273	3 4501 1		CAF	PRI020
0703	REF	12	LAST	358	12,7274	0 2046 1		TC	FINDVAC
0704	REF	1			12,7275	24523 0		CADR	GYRDRFT2
0705	REF	49	LAST	371	12,7276	0 2124 1		TC	ENDOFJOB

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0706	REF 218	LAST 413	12,7277	3 0001 0	TPTIME	XCH	Q
0707	REF 5	LAST 411	12,7300	5 1310 1		TS	QPLAC
0708	REF 11	LAST 392	12,7301	4 0035 0		CS	TIME2
0709	REF 343	LAST 414	12,7302	4 0000 0		CS	A
0710	REF 347	LAST 412	12,7303	5 0115 1		TS	MPAC
0711	REF 15	LAST 337	12,7304	4 0036 0		CS	TIME1
0712	REF 344	LAST 415	12,7305	4 0000 0		CS	A
0713	REF 348	LAST 415	12,7306	5 0116 1		TS	MPAC +1
0714			12,7307	2 0017 0		INHINT	
0715	REF 1		12,7310	0 2712 1		TC	FINETIME
0716			12,7311	2 0016 1		RELINT	
0717	REF 349	LAST 415	12,7312	5 0117 0		TS	MPAC +2
0718	REF 345	LAST 415	12,7313	1 0000 0		CCS	A
0719			12,7314	0 7323 1		TC	+7
0720	REF 12	LAST 415	12,7315	4 0035 0		CS	TIME2
0721	REF 346	LAST 415	12,7316	4 0000 0		CS	A
0722	REF 350	LAST 415	12,7317	5 0115 1		TS	MPAC
0723	REF 16	LAST 415	12,7320	4 0036 0		CS	TIME1
0724	REF 347	LAST 415	12,7321	4 0000 0		CS	A
0725	REF 351	LAST 415	12,7322	5 0116 1		TS	MPAC +1
0726	REF 352	LAST 415	12,7323	3 0117 0		XCH	MPAC +2
0727			12,7324	2 5777 1		EXTEND	
0728	REF 15	LAST 390	12,7325	4 4504 0		MP	BIT11
0729	REF 58	LAST 397	12,7326	3 0003 1		XCH	LP
0730	REF 353	LAST 415	12,7327	5 0117 0		TS	MPAC +2
0731	REF 6	LAST 415	12,7330	0 1310 1		TC	QPLAC

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0732	REF	219	LAST	415	12,7331	3	0001	0	OGCZERO	XCH	Q	ZERO RESIDUAL TORQUING
0733	REF	9	LAST	410	12,7332	5	1225	0		TS	QPLACE	
0734	REF	6	LAST	399	12,7333	3	4477	1		CAF	FIVE	
0735	REF	58	LAST	387	12,7334	5	0034	0		TS	OVCTR	
0736	REF	145	LAST	407	12,7335	3	5501	0		CAF	ZERO	
0737	REF	59	LAST	416	12,7336	2	0034	1		INDEX	OVCTR	
0738	REF	12	LAST	390	12,7337	5	1520	1		TS	OGC	
0739	REF	60	LAST	416	12,7340	1	0034	1		CCS	OVCTR	
0740	REF	2	LAST	393	12,7341	0	7334	1		TC	OGCZERO +3	
0741	REF	10	LAST	416	12,7342	0	1225	0		TC	QPLACE	

0742	REF	220	LAST	416	12,7343	3	0001	0	FLTRZERO	XCH	Q	
0743	REF	11	LAST	416	12,7344	5	1225	0		TS	QPLACE	
0744	REF	7	LAST	416	12,7345	3	4477	1		CAF	FIVE	
0745	REF	61	LAST	416	12,7346	5	0034	0		TS	OVCTR	
0746	REF	146	LAST	416	12,7347	3	5501	0		CAF	ZERO	
0747	REF	62	LAST	416	12,7350	2	0034	1		INDEX	OVCTR	
0748	REF	1			12,7351	5	1114	1		TS	FILDELX	
0749	REF	63	LAST	416	12,7352	1	0034	1		CCS	OVCTR	
0750	REF	1			12,7353	0	7346	1		TC	FLTRZERO +3	
0751	REF	12	LAST	416	12,7354	0	1225	0		TC	QPLACE	

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0752	REF	221	LAST	416	12,7355	3	0001	0	WARTMAL	XCH	Q
0753	REF	13	LAST	416	12,7356	5	1225	0		TS	QPLACE
0754	REF	222	LAST	417	12,7357	4	0001	1		CS	Q
0755	REF	5	LAST	406	12,7360	5	1220	0		TS	COUNTPL
0756	REF	6	LAST	417	12,7361	1	1220	1	WARTMAL4	CCS	COUNTPL
0757					12,7362	0	7366	0		TC	+4
0758	REF	14	LAST	417	12,7363	0	1225	0		TC	QPLACE
0759					12,7364	0	7366	0		TC	+2
0760	REF	1			12,7365	0	7360	0		TC	WARTMAL4 -1
0761					12,7366	2	0017	0		INHINT	
0762	REF	16	LAST	415	12,7367	3	4504	1		CAF	BIT11
0763	REF	55	LAST	406	12,7370	0	2173	0		TC	WAITLIST
0764	REF	1			12,7371		25403	1		CADR	WARTMAL3
0765					12,7372	2	0016	1		RELINT	
0766	REF	7	LAST	417	12,7373	1	1220	1		CCS	COUNTPL
0767	REF	15	LAST	417	12,7374	0	1225	0		TC	QPLACE
0768	REF	16	LAST	417	12,7375	0	1225	0		TC	QPLACE
0769					12,7376	3	0000	1		NOOP	
0770	REF	8	LAST	417	12,7377	5	1220	0	WARTMAL2	TS	COUNTPL
0771	REF	1			12,7400	3	7402	0		CAF	WTMLCADR
0772	REF	14	LAST	406	12,7401	0	2127	1		TC	JOBSLEEP
0773	REF	2	LAST	417	12,7402		25361	1	WTMLCADR	CADR	WARTMAL4
0774	REF	2	LAST	417	12,7403	3	7402	0	WARTMAL3	CAF	WTMLCADR
0775	REF	12	LAST	406	12,7404	0	2060	0		TC	JOBWAKE
0776	REF	41	LAST	406	12,7405	0	2256	1		TC	TASKOVER

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0777	REF	25	LAST	400	12,7406	0 3362 0	ENDTEST	TC	FREEDSP
0778	REF	17	LAST	361	12,7407	0 2362 1		TC	NEWMODE
0779					12,7410	00000 1		OCT	00000
0780	REF	147	LAST	416	12,7411	4 5501 1		CS	ZERO
0781	REF	28	LAST	400	12,7412	5 0677 1		TS	CDUIND
0782	REF	97	LAST	414	12,7413	0 5654 0		TC	BANKCALL
0783	REF	2	LAST	360	12,7414	30453 0		CADR	MKRELEAS
0784	REF	50	LAST	414	12,7415	0 2124 1		TC	ENDOFJOB

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0785	REF	148	LAST	418	12,7416	3	5501	0	SCRTEST	CAF	ZERO
0786	REF	23	LAST	412	12,7417	5	1242	1		TS	DATAPL
0787	REF	7	LAST	409	12,7420	5	1101	0		TS	GENPL +1
0788	REF	8	LAST	419	12,7421	5	1102	0		TS	GENPL +2
0789	REF	9	LAST	419	12,7422	5	1103	1		TS	GENPL +3
0790	REF	10	LAST	419	12,7423	5	1104	0		TS	GENPL +4
0791	REF	56	LAST	410	12,7424	3	5503	1		CAF	TWO
0792	REF	8	LAST	409	12,7425	5	1233	1		TS	CDUNDX
0793					12,7426	2	0017	0		INHINT	
0794	REF	2	LAST	402	12,7427	3	7746	0		CAF	NINTHOU
0795	REF	56	LAST	417	12,7430	0	2173	0		TC	WAITLIST
0796	REF	1			12,7431		25435	1		CADR	CARYON
0797					12,7432	2	0016	1		RELINT	
0798	REF	1			12,7433	3	7440	0		CAF	CONTCADR
0799	REF	15	LAST	417	12,7434	0	2127	1		TC	JOBSLEEP
0800	REF	2	LAST	419	12,7435	3	7440	0	CARYON	CAF	CONTCADR
0801	REF	13	LAST	417	12,7436	0	2060	0		TC	JOBWAKE
0802	REF	42	LAST	417	12,7437	0	2256	1		TC	TASKOVER
0803	REF	1			12,7440		25441	1	CONTCADR	CADR	ULES
0804					12,7441	2	0017	0	ULES	INHINT	
0805	REF	5	LAST	405	12,7442	0	6613	0		TC	CHECKG
0806					12,7443	2	0016	1		RELINT	
0807	REF	3	LAST	405	12,7444	0	7235	1		TC	DATALD1
0808	REF	10	LAST	405	12,7445	3	5502	0		CAF	FOUR
0809	REF	12	LAST	412	12,7446	5	1224	1		TS	RESULTCT
0810	REF	4	LAST	419	12,7447	0	7235	1		TC	DATALD1
0811					12,7450	0	7455	1		TC	+5
0812	REF	9	LAST	419	12,7451	5	1233	1	REPEET	TS	CDUNDX
0813	REF	8	LAST	416	12,7452	3	4477	1		CAF	FIVE
0814	REF	13	LAST	419	12,7453	6	1224	1		AD	RESULTCT
0815	REF	14	LAST	419	12,7454	5	1224	1		TS	RESULTCT
0816	REF	1			12,7455	3	7756	1		CAF	DEC1500
0817	REF	9	LAST	417	12,7456	5	1220	0	SUMSUM	TS	COUNTPL
0818					12,7457	2	0017	0		INHINT	
0819	REF	6	LAST	409	12,7460	3	3232	1		CAF	TEN
0820	REF	57	LAST	419	12,7461	0	2173	0		TC	WAITLIST
0821	REF	1			12,7462		25467	0		CADR	REPMAL
0822					12,7463	2	0016	1		RELINT	
0823	REF	1			12,7464	3	7466	1		CAF	REPCADR
0824	REF	16	LAST	419	12,7465	0	2127	1		TC	JOBSLEEP
0825	REF	1			12,7466		25473	0	REPCADR	CADR	RETPLS
0826	REF	2	LAST	419	12,7467	3	7466	1	REPMAL	CAF	REPCADR
0827	REF	14	LAST	419	12,7470	0	2060	0		TC	JOBWAKE

CDUNDX USED FOR CONV

LENGTH OF TEST SELECTED IN LAB

LENGTH OF SAMPLE SELECTED BY LAB TEST

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0828	REF	43 LAST 419	12,7471	0 2256 1		TC	TASKOVER
0829	REF	1	12,7472	07501 1	RETADR	ADRES	RETHERE
0830	REF	1	12,7473	3 7472 1	RETPLS	CAF	RETADR
0831	REF	17 LAST 417	12,7474	5 1225 0		TS	QPLACE
0832			12,7475	2 0017 0		INHINT	
0833	REF	149 LAST 419	12,7476	3 5501 0		CAF	ZERO
0834	REF	16 LAST 412	12,7477	5 1230 1		TS	STOREPL
0835	REF	3 LAST 403	12,7500	0 6660 1		TC	CHECKG3
0836			12,7501	2 0016 1	RETHERE	RELINT	
0837	REF	24 LAST 419	12,7502	4 1242 0		CS	DATAPL
0838	REF	17 LAST 420	12,7503	6 1230 1		AD	STOREPL
0839	REF	11 LAST 419	12,7504	5 1100 1		TS	GENPL
0840	REF	98 LAST 418	12,7505	0 5654 0		TC	BANKCALL
0841	REF	1	12,7506	71532 0		CADR	SCRINTP
0842	REF	10 LAST 419	12,7507	1 1233 0		CCS	CDUNDX
0843	REF	1	12,7510	0 7451 0		TC	REPEET
0844	REF	99 LAST 420	12,7511	0 5654 0		TC	BANKCALL
0845	REF	2 LAST 405	12,7512	71207 1		CADR	RESULTS

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0846	REF	150	LAST	420	12,7513	3	5501	0	POSSET	CAF	ZERO	
0847	REF	15	LAST	419	12,7514	5	1224	1		TS	RESULTCT	
0848	REF	1			12,7515	3	7753	1		CAF	MTRXLD1	
0849	REF	64	LAST	416	12,7516	5	0034	0		TS	OVCTR	
0850	REF	151	LAST	421	12,7517	3	5501	0		CAF	ZERO	
0851	REF	65	LAST	421	12,7520	2	0034	1		INDEX	OVCTR	
0852	REF	13	LAST	407	12,7521	5	1424	1		TS	XSM	
0853	REF	66	LAST	421	12,7522	1	0034	1		CCS	OVCTR	
0854					12,7523	0	7516	1		TC	-5	
0855	REF	14	LAST	414	12,7524	2	1223	1		INDEX	POSITON	
0856					12,7525	0	7526	1		TC	+1	
0857	REF	19	LAST	414	12,7526	0	7406	1		TC	ENDTEST	
0858	REF	1			12,7527	0	7542	0		TC	POSN1	
0859	REF	1			12,7530	0	7561	1		TC	POSN2	
0860	REF	1			12,7531	0	7601	1		TC	POSN3	
0861	REF	1			12,7532	0	7616	1		TC	POSN4	
0862	REF	1			12,7533	0	7632	1		TC	POSN5	
0863	REF	1			12,7534	0	7647	0		TC	POSN6	
0864	REF	1			12,7535	0	7661	1		TC	POSN7	
0865	REF	1			12,7536	0	7677	0		TC	POSN8	
0866	REF	1			12,7537	0	7714	1		TC	POSN9	
0867	REF	1			12,7540	0	7732	0		TC	POSN10	
0868	REF	1			12,7541	0	7735	1		TC	POSN11	
0869	REF	10	LAST	388	12,7542	3	4522	0	POSN1	CAF	HALF	X UP Y SOUTH Z EAST
0870	REF	14	LAST	421	12,7543	5	1424	1		TS	XSM	
0871	REF	4	LAST	410	12,7544	5	1434	0		TS	YSM +2	
0872	REF	1			12,7545	5	1444	1		TS	ZSM +4	
0873	REF	7	LAST	412	12,7546	1	1232	1		CCS	TESTNDX	
0874					12,7547	0	7551	1		TC	+2	
0875	REF	1			12,7550	0	7556	0		TC	LPNDX1	
0876					12,7551	3	0000	1		NOOP		
0877	REF	152	LAST	421	12,7552	3	5501	0		CAF	ZERO	
0878	REF	12	LAST	406	12,7553	5	1221	1		TS	PIPINDEX	
0879	REF	11	LAST	420	12,7554	5	1233	1		TS	CDUNDX	
0880	REF	1			12,7555	0	6553	1		TC	POSGMBL	
0881	REF	57	LAST	419	12,7556	3	5503	1	LPNDX1	CAF	TWO	
0882	REF	13	LAST	421	12,7557	5	1221	1		TS	PIPINDEX	
0883	REF	2	LAST	421	12,7560	0	6553	1		TC	POSGMBL	
0884	REF	11	LAST	421	12,7561	3	4522	0	POSN2	CAF	HALF	X DOWN Y WEST ZNORTH
0885					12,7562	4	0000	0		COM		
0886	REF	15	LAST	421	12,7563	5	1424	1		TS	XSM	
0887	REF	5	LAST	421	12,7564	5	1436	1		TS	YSM +4	
0888	REF	2	LAST	421	12,7565	5	1442	1		TS	ZSM +2	
0889	REF	8	LAST	421	12,7566	1	1232	1		CCS	TESTNDX	
0890					12,7567	0	7571	0		TC	+2	
0891	REF	1			12,7570	0	7576	1		TC	LPNDX2	
0892					12,7571	3	0000	1		NOOP		
0893	REF	153	LAST	421	12,7572	3	5501	0		CAF	ZERO	
0894	REF	12	LAST	421	12,7573	5	1233	1		TS	CDUNDX	
0895	REF	14	LAST	421	12,7574	5	1221	1		TS	PIPINDEX	

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0896	REF	3	LAST	421	12,7575	0	6553	1		TC	POSGMBL	
0897	REF	134	LAST	414	12,7576	3	4516	1	LPNDX2	CAF	ONE	
0898	REF	15	LAST	421	12,7577	5	1221	1		TS	PIPINDEX	
0899	REF	4	LAST	422	12,7600	0	6553	1		TC	POSGMBL	
0900	REF	12	LAST	421	12,7601	3	4522	0	POSN3	CAF	HALF	Z UP Y WEST X NORTH
0901	REF	3	LAST	421	12,7602	5	1440	0		TS	ZSM	
0902					12,7603	4	0000	0		COM		
0903	REF	16	LAST	421	12,7604	5	1426	0		TS	XSM +2	
0904	REF	6	LAST	421	12,7605	5	1436	1		TS	YSM +4	
0905	REF	9	LAST	421	12,7606	1	1232	1		CCS	TESTNDX	
0906	REF	1			12,7607	0	7613	1		TC	LCNDX3	
0907	REF	2	LAST	421	12,7610	0	7576	1		TC	LPNDX2	
0908					12,7611	3	0000	1		NOOP		
0909	REF	2	LAST	421	12,7612	0	7556	0		TC	LPNDX1	
0910	REF	154	LAST	421	12,7613	3	5501	0	LCNDX3	CAF	ZERO	
0911	REF	13	LAST	421	12,7614	5	1233	1		TS	CDUNDX	
0912	REF	5	LAST	422	12,7615	0	6553	1		TC	POSGMBL	
0913	REF	13	LAST	422	12,7616	3	4522	0	POSN4	CAF	HALF	Z DOWN Y SOUTH X EAST
0914	REF	17	LAST	422	12,7617	5	1430	1		TS	XSM +4	
0915	REF	7	LAST	422	12,7620	5	1434	0		TS	YSM +2	
0916					12,7621	4	0000	0		COM		
0917	REF	4	LAST	422	12,7622	5	1440	0		TS	ZSM	
0918	REF	10	LAST	422	12,7623	1	1232	1		CCS	TESTNDX	
0919	REF	2	LAST	422	12,7624	0	7613	1		TC	LCNDX3	
0920	REF	1			12,7625	0	7630	0		TC	LPNDX4	
0921					12,7626	3	0000	1		NOOP		
0922	REF	3	LAST	422	12,7627	0	7556	0		TC	LPNDX1	
0923	REF	16	LAST	422	12,7630	5	1221	1	LPNDX4	TS	PIPINDEX	
0924	REF	6	LAST	422	12,7631	0	6553	1		TC	POSGMBL	
0925	REF	14	LAST	422	12,7632	3	4522	0	POSN5	CAF	HALF	Y UP Z NORTH X WEST
0926	REF	8	LAST	422	12,7633	5	1432	0		TS	YSM	
0927					12,7634	4	0000	0		COM		
0928	REF	18	LAST	422	12,7635	5	1430	1		TS	XSM +4	
0929	REF	5	LAST	422	12,7636	5	1442	1		TS	ZSM +2	
0930	REF	11	LAST	422	12,7637	1	1232	1		CCS	TESTNDX	
0931	REF	1			12,7640	0	7644	0		TC	LCNDX5	
0932	REF	2	LAST	422	12,7641	0	7630	0		TC	LPNDX4	
0933	REF	2	LAST	422	12,7642	0	7644	0		TC	LCNDX5	
0934	REF	3	LAST	422	12,7643	0	7576	1		TC	LPNDX2	
0935	REF	135	LAST	422	12,7644	3	4516	1	LCNDX5	CAF	ONE	
0936	REF	14	LAST	422	12,7645	5	1233	1		TS	CDUNDX	
0937	REF	7	LAST	422	12,7646	0	6553	1		TC	POSGMBL	
0938	REF	15	LAST	422	12,7647	3	4522	0	POSN6	CAF	HALF	Y DOWN Z EAST X SOUTH
0939	REF	19	LAST	422	12,7650	5	1426	0		TS	XSM +2	
0940	REF	6	LAST	422	12,7651	5	1444	1		TS	ZSM +4	
0941					12,7652	4	0000	0		COM		
0942	REF	9	LAST	422	12,7653	5	1432	0		TS	YSM	

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0943	REF	12	LAST	422	12,7654	1	1232	1	CCS	TESTNDX
0944	REF	3	LAST	422	12,7655	0	7644	0	TC	LCNDX5
0945	REF	4	LAST	422	12,7656	0	7556	0	TC	LPNDX1
0946	REF	4	LAST	423	12,7657	0	7644	0	TC	LCNDX5
0947	REF	4	LAST	422	12,7660	0	7576	1	TC	LPNDX2
0948	REF	1			12,7661	3	7754	0	CAF	ROOT 2/4
0949	REF	7	LAST	422	12,7662	5	1440	0	TS	ZSM
0950	REF	8	LAST	423	12,7663	5	1442	1	TS	ZSM +2
0951	REF	10	LAST	422	12,7664	5	1432	0	TS	YSM
0952					12,7665	4	0000	0	COM	
0953	REF	11	LAST	423	12,7666	5	1434	0	TS	YSM +2
0954	REF	16	LAST	422	12,7667	3	4522	0	CAF	HALF
0955	REF	20	LAST	422	12,7670	5	1430	1	TS	XSM +4
0956	REF	155	LAST	422	12,7671	3	5501	0	CAF	ZERO
0957	REF	17	LAST	422	12,7672	5	1221	1	TS	PIPINDEX
0958	REF	8	LAST	414	12,7673	1	1231	1	CCS	NBPOS
0959	REF	2	LAST	414	12,7674	0	6523	0	TC	GYRDRFT2
0960	REF	13	LAST	423	12,7675	5	1232	0	TS	TESTNDX
0961	REF	8	LAST	422	12,7676	0	6553	1	TC	POSGMBL
0962	REF	2	LAST	423	12,7677	3	7754	0	CAF	ROOT 2/4
0963	REF	12	LAST	423	12,7700	5	1432	0	TS	YSM
0964	REF	13	LAST	423	12,7701	5	1434	0	TS	YSM +2
0965	REF	21	LAST	423	12,7702	5	1424	1	TS	XSM
0966					12,7703	4	0000	0	COM	
0967	REF	22	LAST	423	12,7704	5	1426	0	TS	XSM +2
0968	REF	17	LAST	423	12,7705	3	4522	0	CAF	HALF
0969	REF	9	LAST	423	12,7706	5	1444	1	TS	ZSM +4
0970	REF	58	LAST	421	12,7707	3	5503	1	CAF	TWO
0971	REF	18	LAST	423	12,7710	5	1221	1	TS	PIPINDEX
0972	REF	156	LAST	423	12,7711	3	5501	0	CAF	ZERO
0973	REF	14	LAST	423	12,7712	5	1232	0	TS	TESTNDX
0974	REF	9	LAST	423	12,7713	0	6553	1	TC	POSGMBL
0975	REF	3	LAST	423	12,7714	3	7754	0	CAF	ROOT 2/4
0976	REF	23	LAST	423	12,7715	5	1424	1	TS	XSM
0977	REF	24	LAST	423	12,7716	5	1426	0	TS	XSM +2
0978	REF	10	LAST	423	12,7717	5	1440	0	TS	ZSM
0979					12,7720	4	0000	0	COM	
0980	REF	11	LAST	423	12,7721	5	1442	1	TS	ZSM +2
0981	REF	18	LAST	423	12,7722	3	4522	0	CAF	HALF
0982	REF	14	LAST	423	12,7723	5	1436	1	TS	YSM +4
0983	REF	136	LAST	422	12,7724	3	4516	1	CAF	ONE
0984	REF	19	LAST	423	12,7725	5	1221	1	TS	PIPINDEX
0985	REF	9	LAST	423	12,7726	1	1231	1	CCS	NBPOS
0986	REF	3	LAST	423	12,7727	0	6523	0	TC	GYRDRFT2
0987	REF	15	LAST	423	12,7730	5	1232	0	TS	TESTNDX
0988	REF	10	LAST	423	12,7731	0	6553	1	TC	POSGMBL
0989	REF	137	LAST	423	12,7732	4	4516	0	CS	ONE
0990	REF	16	LAST	423	12,7733	5	1232	0	TS	TESTNDX
0991	REF	2	LAST	421	12,7734	0	7632	1	TC	POSN5

POSITION FOR LONG TEST FOR ADIAY

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0992	REF 138	LAST 423	12.7735	4 4516 0	POSN11	CS	ONE
0993	REF 17	LAST 423	12.7736	5 1232 0		TS	TESTNDX
0994	REF 2	LAST 421	12.7737	0 7647 0		TC	POSN6

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0995		12,7740	00530 1	V05N30E	OCT	00530
0996		12,7741	00110 1	72DEC	DEC	72
0997		12,7742	02130 1	V21N30E	OCT	02130
0998		12,7743	13560 0	60SEC	DEC	6000
0999		12,7744	05670 0	30SEC	DEC	3000
1000		12,7745	00730 0	V07N30E	OCT	00730
1001		12,7746	21450 0	NINTHOU	DEC	9000
1002		12,7747	00100 0	SXTTR	DEC	64
1003		12,7750	00264 1	DEC180	DEC	180
1004		12,7751	00666 1	VB06N66	OCT	00666
1005		12,7752	00013 0	DEC11	DEC	11
1006		12,7753	00021 1	MTRXLD1	DEC	17
1007		12,7754	13241 1	ROOT 2/4	DEC	.35355339
1008	REF 12 LAST 420	12,7755	01100 1	FLNDX12	ADRES	GENPL
1009		12,7756	02734 0	DEC1500	DEC	1500
1010		12,7757	02650 0	DECX	DEC	1448

THIS FIXES INACCURACY DUE TO ENCODER

FIXED BY *UNEEDA* DEBUGGING SERVICE

L	IMU PERFORMANCE TESTS 2	34,6000	SETLOC 70000	USER'S OWN PAGE NO. 1
0001				
0002	REF 100 LAST 420	34,6000 0 5654 0	MISALIGN TC	BANKCALL
0003	REF 3 LAST 416	34,6001 25331 1	CADR	OGCZERO
0004	REF 17 LAST 397	34,6002 0 3302 0	TC	GRABDSP
0005	REF 17 LAST 397	34,6003 0 3310 0	TC	PREGBSY
0006	REF 1	34,6004 3 3533 1	CAF	11DEC
0007	REF 1	34,6005 5 1311 0	TS	PTS
0008	REF 157 LAST 423	34,6006 3 5501 0	CAF	ZERO
0009	REF 2 LAST 426	34,6007 5 1312 0	TS	PTS +1
0010	REF 9 LAST 410	34,6010 5 1224 1	BBB TS	NDXCTR
0011	REF 10 LAST 426	34,6011 2 1224 0	INDEX	NDXCTR
0012	REF 13 LAST 425	34,6012 4 1204 1	CS	GENPL +68D
0013	REF 11 LAST 426	34,6013 2 1224 0	INDEX	NDXCTR
0014	REF 14 LAST 426	34,6014 6 1212 1	AD	GENPL +74D
0015	REF 12 LAST 426	34,6015 2 1224 0	INDEX	NDXCTR
0016	REF 15 LAST 426	34,6016 5 1212 1	TS	GENPL +74D
0017	REF 1	34,6017 3 6235 0	CAF	63DEC
0018	REF 13 LAST 426	34,6020 6 1224 1	AD	NDXCTR
0019	REF 348 LAST 415	34,6021 1 0000 0	CCS	A
0020	REF 9 LAST 407	34,6022 4 4473 1	CS	THREE
0021	REF 14 LAST 426	34,6023 6 1224 1	AD	NDXCTR
0022	REF 1	34,6024 0 6010 0	TC	BBB
0023	REF 15 LAST 426	34,6025 5 1224 1	CCCC TS	NDXCTR
0024	REF 20 LAST 383	34,6026 0 4000 0	TC	INTPRET
0025		34,6027 73576 1	LXA,1	0
0026	REF 16 LAST 426	34,6030 01225 0		NDXCTR
0027		34,6031 44175 1	DMOVE*	1
0028		34,6032 66776 1	DSJ	
0029	REF 16 LAST 426	34,6033 02421 1		GENPL +72D,1
0030	REF 17 LAST 426	34,6034 01101 0		GENPL
0031	REF 18 LAST 426	34,6035 36421 0	STORE	GENPL +72D,1
0032		34,6036 77576 0	EXIT	0
0033	REF 17 LAST 426	34,6037 4 1224 0	CS	NDXCTR
0034	REF 1	34,6040 6 6236 0	AD	69DEC
0035	REF 349 LAST 426	34,6041 1 0000 0	CCS	A
0036	REF 10 LAST 426	34,6042 3 4473 0	CAF	THREE
0037	REF 18 LAST 426	34,6043 6 1224 1	AD	NDXCTR
0038	REF 1	34,6044 0 6025 0	TC	CCCC
0039	REF 19 LAST 426	34,6045 5 1100 1	TS	GENPL
0040	REF 20 LAST 426	34,6046 5 1101 0	TS	GENPL +1
0041	REF 1	34,6047 5 1312 0	TS	RUN
0042	REF 11 LAST 426	34,6050 3 4473 0	CAF	THREE
0043	REF 19 LAST 426	34,6051 5 1224 1	DDDD TS	NDXCTR
0044	REF 21 LAST 426	34,6052 0 4000 0	TC	INTPRET
0045		34,6053 73576 1	LXA,1	0
0046	REF 20 LAST 426	34,6054 01225 0		NDXCTR
0047		34,6055 66376 0	DSJ*	0
0048	REF 21 LAST 426	34,6056 02421 1		GENPL +72D,1
0049	REF 22 LAST 426	34,6057 02405 1		GENPL +66D,1
0050		34,6060 47575 0	NOLDD	1

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0051				34,6061	56740 1	TSRT	DAD*
0052				34,6062	00002 0		1
0053	REF	23	LAST	426	34,6063	02405 1	GENPL +66D,1
0054	REF	24	LAST	427	34,6064	36421 0	STORE GENPL +72D,1
0055				34,6065	47575 0	NOLOD	1
0056				34,6066	63742 0	TSLT	DAD
0057				34,6067	00003 1		2
0058	REF	13	LAST	416	34,6070	01521 0	OGC
0059	REF	14	LAST	427	34,6071	33521 1	STORE OGC
0060				34,6072	44174 0	DMOVE*	2
0061				34,6073	63643 0	TSLT	DSQ
0062				34,6074	70776 0	DAD	
0063	REF	25	LAST	427	34,6075	02421 1	GENPL +72D,1
0064				34,6076	00005 1		4
0065	REF	6	LAST	373	34,6077	01525 1	MGC
0066	REF	7	LAST	427	34,6100	33525 0	STORE MGC
0067				34,6101	77576 0	EXIT	0
0068	REF	2	LAST	426	34,6102	4 1312 1	CS RUN
0069				34,6103	4 0000 0	COM	
0070	REF	21	LAST	426	34,6104	6 1224 1	AD NDXCTR
0071				34,6105	4 0000 0	COM	
0072	REF	2	LAST	426	34,6106	6 6235 0	AD 63DEC
0073	REF	350	LAST	426	34,6107	1 0000 0	CCS A
0074	REF	15	LAST	400	34,6110	3 4475 0	CAF SIX
0075	REF	22	LAST	427	34,6111	6 1224 1	AD NDXCTR
0076	REF	1			34,6112	0 6051 0	TC DDDD
0077	REF	3	LAST	427	34,6113	6 1312 0	AD RUN
0078	REF	23	LAST	427	34,6114	5 1224 1	TS NDXCTR
0079	REF	24	LAST	427	34,6115	2 1224 0	INDEX NDXCTR
0080	REF	26	LAST	427	34,6116	4 1113 1	CS GENPL +11D
0081				34,6117	4 0000 0	COM	
0082	REF	1			34,6120	5 1572 0	TS TEMDELV
0083	REF	158	LAST	426	34,6121	3 5501 0	CAF ZERO
0084	REF	2	LAST	427	34,6122	5 1573 1	TS TEMDELV +1
0085	REF	22	LAST	426	34,6123	0 4000 0	TC INTPRET
0086				34,6124	71576 0	LXC,1	0
0087	REF	25	LAST	427	34,6125	01225 0	NDXCTR
0088				34,6126	45176 0	DMOVE	0
0089				34,6127	77777 0		-
0090				34,6130	47574 1	NOLOD	2
0091				34,6131	63706 0	TSLT	BDDV
0092				34,6132	70776 0	DAD	
0093				34,6133	00006 1		5
0094	REF	3	LAST	427	34,6134	01573 1	TEMDELV
0095	REF	6	LAST	372	34,6135	01523 1	IGC
0096	REF	7	LAST	427	34,6136	33523 0	STORE IGC
0097				34,6137	63775 1	TSLT	1
0098				34,6140	61776 0	BDDV	
0099				34,6141	77777 0		-
0100				34,6142	00004 0		3

EEEE

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USER'S OWN PAGE NO. 3

0101	REF	4	LAST	427	34,6143	01573	1		TEMDELV
0102					34,6144	44174	0	DMOVE*	2
0103					34,6145	63722	0	TSLT	DMP
0104					34,6146	70776	0	DAD	
0105	REF	27	LAST	427	34,6147	02223	0		GENPL +9D,1
0106					34,6150	00005	1		4
0107					34,6151	77777	0		-
0108	REF	28	LAST	428	34,6152	01101	0		GENPL
0109	REF	29	LAST	428	34,6153	33101	1	STORE	GENPL
0110					34,6154	77576	0	EXIT	0
0111	REF	26	LAST	427	34,6155	4 1224	0	CS	NDXCTR
0112	REF	3	LAST	427	34,6156	6 6235	0	AD	63DEC
0113	REF	4	LAST	427	34,6157	6 1312	0	AD	RUN
0114	REF	3	LAST	124	34,6160	6 4341	0	AD	NEG3
0115	REF	351	LAST	427	34,6161	1 0000	0	CCS	A
0116	REF	16	LAST	427	34,6162	3 4475	0	CAF	SIX
0117	REF	27	LAST	428	34,6163	6 1224	1	AD	NDXCTR
0118	REF	1			34,6164	0 6114	0	TC	EEEE
0119	REF	23	LAST	427	34,6165	0 4000	0	TC	INTPRET
0120					34,6166	64776	0	DMP	0
0121	REF	15	LAST	427	34,6167	01521	0		OGC
0122	REF	30	LAST	428	34,6170	01101	0		GENPL
0123					34,6171	64775	0	DMP	1
0124					34,6172	66776	1	DSJ	
0125	REF	8	LAST	427	34,6173	01525	1		MGC
0126	REF	8	LAST	427	34,6174	01523	1		IGC
0127					34,6175	51175	0	DSQ	1
0128					34,6176	56776	1	TSRT	
0129	REF	16	LAST	428	34,6177	01521	0		OGC
0130					34,6200	00002	0		1
0131					34,6201	63774	0	TSLT	2
0132					34,6202	64732	0	DMP	DSU
0133					34,6203	61722	1	BDDV	DMP
0134	REF	3	LAST	426	34,6204	01312	0		PTS
0135					34,6205	00012	1		11
0136	REF	9	LAST	428	34,6206	01525	1		MGC
0137					34,6207	77777	0		-
0138					34,6210	77777	0		-
0139	REF	1			34,6211	30234	1		K
0140	REF	7	LAST	412	34,6212	32622	0	STORE	DSPTM2
0141					34,6213	77576	0	EXIT	0
0142	REF	101	LAST	426	34,6214	0 5654	0	TC	BANKCALL
0143	REF	9	LAST	412	34,6215	14000	1	CADR	FLASHON
0144	REF	1			34,6216	3 7730	1	CAF	V06N66E
0145	REF	38	LAST	412	34,6217	0 3100	0	TC	NVSUB
0146	REF	33	LAST	412	34,6220	0 3315	0	TC	PRENVBSY
0147	REF	25	LAST	412	34,6221	0 3136	0	TC	ENDIDLE
0148	REF	1			34,6222	0 6237	1	TC	ENDTEST1
0149	REF	12	LAST	426	34,6223	3 4473	0	CAF	THREE
0150	REF	5	LAST	428	34,6224	5 1312	0	TS	RUN

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0151	REF 102 LAST 428	34,6225	0 5654 0	TC	BANKCALL
0152	REF 4 LAST 426	34,6226	25331 1	CADR	OGCZERO
0153	REF 159 LAST 427	34,6227	3 5501 0	CAF	ZERO
0154	REF 31 LAST 428	34,6230	5 1100 1	TS	GENPL
0155	REF 32 LAST 429	34,6231	5 1101 0	TS	GENPL +1
0156	REF 2 LAST 427	34,6232	0 6051 0	TC	DDDD
0157		34,6233	02321 0 K	2DEC	1.233 E3 B-14
C0157		34,6234	00000 1		
0159		34,6235	00077 1 63DEC	DEC	63
0160		34,6236	00105 0 69DEC	DEC	69
0161	REF 103 LAST 429	34,6237	0 5654 0	ENDTEST1 TC	BANKCALL
0162	REF 20 LAST 421	34,6240	25406 1	CADR	ENDTEST

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0163	REF	7	LAST	412	34,6241	0	5706	0	FINDNAVB	TC	MAKECADR	
0164	REF	3	LAST	412	34,6242	5	1573	1		TS	RETAA	
0165	REF	104	LAST	429	34,6243	0	5654	0		TC	BANKCALL	
0166	REF	3	LAST	418	34,6244		30453	0		CADR	MKRELEAS	
0167	REF	139	LAST	424	34,6245	3	4516	1		CAF	ONE	
0168	REF	37	LAST	409	34,6246	5	0616	0		TS	DSPTM1	
0169	REF	1			34,6247	3	7731	0		CAF	VO1N30E	MARK ON TARGET 1
0170	REF	39	LAST	428	34,6250	0	3100	0		TC	NVSUB	
0171	REF	34	LAST	428	34,6251	0	3315	0		TC	PRENVBSY	
0172	REF	140	LAST	430	34,6252	3	4516	1		CAF	ONE	
0173	REF	105	LAST	430	34,6253	0	5654	0		TC	BANKCALL	
0174	REF	3	LAST	359	34,6254		30406	0		CADR	SXTMARK	
0175	REF	106	LAST	430	34,6255	0	5654	0		TC	BANKCALL	
0176	REF	4	LAST	359	34,6256		30327	1		CADR	OPTSTALL	
0177	REF	2	LAST	428	34,6257	0	6237	1		TC	ENDTEST1	
0178	REF	26	LAST	360	34,6260	2	0735	1		INDEX	MARKSTAT	
0179					34,6261	4	0000	0		CS	0	
0180	REF	352	LAST	428	34,6262	4	0000	0		CS	A	
0181	REF	1			34,6263	5	1302	1		TS	VACADR	TIME OF MARK
0182	REF	27	LAST	430	34,6264	2	0735	1		INDEX	MARKSTAT	
0183					34,6265	4	0001	1		CS	1	
0184	REF	353	LAST	430	34,6266	4	0000	0		CS	A	
0185	REF	2	LAST	430	34,6267	5	1303	0		TS	VACADR +1	
0186	REF	28	LAST	430	34,6270	4	0735	1		CS	MARKSTAT	
0187	REF	1			34,6271	5	1304	1		TS	MKSTAT1	
0188	REF	107	LAST	430	34,6272	0	5654	0		TC	BANKCALL	
0189	REF	4	LAST	430	34,6273		30453	0		CADR	MKRELEAS	
0190	REF	59	LAST	423	34,6274	3	5503	1		CAF	TWO	
0191	REF	38	LAST	430	34,6275	5	0616	0		TS	DSPTM1	
0192	REF	2	LAST	430	34,6276	3	7731	0		CAF	VO1N30E	MARK ON TARGET 4
0193	REF	40	LAST	430	34,6277	0	3100	0		TC	NVSUB	
0194	REF	35	LAST	430	34,6300	0	3315	0		TC	PRENVBSY	
0195	REF	141	LAST	430	34,6301	3	4516	1		CAF	ONE	
0196	REF	108	LAST	430	34,6302	0	5654	0		TC	BANKCALL	
0197	REF	4	LAST	430	34,6303		30406	0		CADR	SXTMARK	
0198	REF	3	LAST	393	34,6304	1	1305	1		CCS	COAROFIN	COARSE ALIGN OR FINE ALIGN MARKS
0199	REF	1			34,6305	0	6374	1		TC	CLGNMARK	
0200	REF	2	LAST	430	34,6306	4	1304	0		CS	MKSTAT1	
0201	REF	60	LAST	430	34,6307	6	5503	1		AD	TWO	
0202	REF	29	LAST	385	34,6310	2	0067	1		INDEX	FIXLOC	
0203	REF	8	LAST	360	34,6311	5	0050	1		TS	S1	BASE ADDRESS GIMBAL ANGLES
0204	REF	24	LAST	428	34,6312	0	4000	0		TC	INTPRET	OPT-NB-SM TARGET 1
0205					34,6313		73576	1		LXA,1	0	
0206	REF	3	LAST	430	34,6314		01305	0			MKSTAT1	
0207					34,6315		76776	0		ITC	0	
0208	REF	3	LAST	360	34,6316		04733	1			SXTNB	
0209					34,6317		44775	1		VSLT	1	
0210					34,6320		76776	0		ITC		
0211	REF	3	LAST	360	34,6321		00041	1			STARM	
0212					34,6322		00001	0			0	

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0213	REF	3 LAST 360	34,6323	04524 0		NBSM	
0214			34,6324	47576 0	NOLOD	0	
0215	REF	5 LAST 372	34,6325	33403 0	STORE	STARAD	
0216			34,6326	45176 0	DMOVE	0	
0217	REF	3 LAST 430	34,6327	01303 0		VACADR	
0218	REF	1	34,6330	33175 1	STORE	TMARK	
0219			34,6331	77576 0	EXIT	0	
0220	REF	25 LAST 430	34,6332	0 4000 0	EARRTCOM	TC	INTERPRET COMPENSATE BETWEEN FINE ALIGN MARKS
0221			34,6333	76776 0		ITC	0
0222	REF	1	34,6334	30613 0			EARTH
0223			34,6335	76776 0		ITC	0
0224	REF	1	34,6336	30634 0			OUTGYR
0225			34,6337	77576 0		EXIT	0
0226	REF	109 LAST 430	34,6340	0 5654 0		TC	BANKCALL
0227	REF	24 LAST 400	34,6341	30331 0		CADR	IMUSTALL
0228	REF	3 LAST 430	34,6342	0 6237 1		TC	ENDTEST1
0229	REF	2 LAST 149	34,6343	1 0734 0		CCS	OPTCADR
0230			34,6344	0 6347 1		TC	+3
0231	REF	1	34,6345	0 6332 0		TC	EARRTCOM
0232			34,6346	0 6347 1		TC	+1
0233	REF	110 LAST 431	34,6347	0 5654 0		TC	BANKCALL
0234	REF	5 LAST 430	34,6350	30327 1		CADR	OPTSTALL
0235	REF	4 LAST 431	34,6351	0 6237 1		TC	ENDTEST1
0236	REF	61 LAST 430	34,6352	3 5503 1		CAF	TWO
0237	REF	29 LAST 430	34,6353	6 0735 0		AD	MARKSTAT
0238	REF	30 LAST 430	34,6354	2 0067 1		INDEX	FIXLOC
0239	REF	9 LAST 430	34,6355	5 0050 1		TS	S1
0240	REF	26 LAST 431	34,6356	0 4000 0		TC	INTERPRET
0241			34,6357	71576 0		LXC,1	0
0242	REF	30 LAST 431	34,6360	00736 0			MARKSTAT
0243			34,6361	76776 0		ITC	0
0244	REF	4 LAST 430	34,6362	04733 1			SXTNB
0245			34,6363	44775 1		VSLT	1
0246			34,6364	76776 0		ITC	
0247	REF	4 LAST 430	34,6365	00041 1			STARM
0248			34,6366	00001 0			0
0249	REF	4 LAST 431	34,6367	04524 0			NBSM
0250			34,6370	47576 0		NOLOD	0
0251	REF	6 LAST 431	34,6371	33411 0		STORE	STARAD +6
0252			34,6372	76776 0		ITC	0
0253	REF	1	34,6373	30421 0			MATXDET
0254	REF	27 LAST 431	34,6374	0 4000 0	CLGNMARK	TC	INTERPRET
0255			34,6375	73576 1		LXA,1	0
0256	REF	4 LAST 430	34,6376	01305 0			MKSTAT1
0257			34,6377	76776 0		ITC	0
0258	REF	5 LAST 431	34,6400	04733 1			SXTNB
0259			34,6401	75176 0		VMOVE	0
0260	REF	5 LAST 431	34,6402	00041 1			STARM

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0261	REF	7 LAST 431	34,6403	33403 0	STORE	STARAD		
0262			34,6404	77576 0	EXIT	0		
0263	REF	111 LAST 431	34,6405	0 5654 0	TC	BANKCALL		
0264	REF	6 LAST 431	34,6406	30327 1	CADR	OPTSTALL		
0265	REF	5 LAST 431	34,6407	0 6237 1	TC	ENDTEST1		
0266	REF	28 LAST 431	34,6410	0 4000 0	TC	INTPRET	OPT-NB	TARGET 4
0267			34,6411	71576 0	LXC,1	0		
0268	REF	31 LAST 431	34,6412	00736 0		MARKSTAT		
0269			34,6413	76776 0	ITC	0		
0270	REF	6 LAST 431	34,6414	04733 1		SXTNB		
0271			34,6415	75176 0	VMOVE	0		
0272	REF	6 LAST 431	34,6416	00041 1		STARM		
0273	REF	8 LAST 432	34,6417	33411 0	STORE	STARAD +6		
0274			34,6420	75176 0	MATXDET	VMOVE	0	CALCULATE TRANSFORMATION MATRIX
0275	REF	1	34,6421	01101 0		TAR1POS		
0276			34,6422	32007 1	STORE	6		
0277			34,6423	75176 0	VMOVE	0		
0278	REF	2 LAST 432	34,6424	01107 0		TAR1POS +6		
0279			34,6425	32015 1	STORE	12D		
0280			34,6426	76776 0	ITC	0		
0281	REF	3 LAST 372	34,6427	04761 0		AXISGEN		
0282			34,6430	75176 0	VMOVE	0		
0283	REF	1	34,6431	01477 1		XDC		
0284	REF	9 LAST 432	34,6432	33403 0	STORE	STARAD		
0285			34,6433	75176 0	VMOVE	0		
0286	REF	1	34,6434	01505 0		YDC		
0287	REF	10 LAST 432	34,6435	33411 0	STORE	STARAD +6		
0288			34,6436	75176 0	VMOVE	0		
0289	REF	1	34,6437	01513 1		ZDC		
0290	REF	11 LAST 432	34,6440	33417 0	STORE	STARAD +12D		
0291			34,6441	77576 0	EXIT	0		
0292	REF	4 LAST 430	34,6442	3 1573 1	XCH	RETAA		
0293	REF	6 LAST 412	34,6443	0 5723 1	TC	BANKJUMP		

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0294	REF	8	LAST	430	34,6444	0	5706	0	PUTPOX	TC	MAKECADR	
0295	REF	5	LAST	432	34,6445	5	1573	1		TS	RETAA	
0296	REF	29	LAST	432	34,6446	0	4000	0		TC	INTPRET	
0297					34,6447		76776	0		ITC	0	
0298	REF	2	LAST	333	34,6450		04644	0			CALCGA	
0299					34,6451		77576	0		EXIT	0	
0300	REF	112	LAST	432	34,6452	0	5654	0		TC	BANKCALL	
0301	REF	3	LAST	335	34,6453		30104	1		CADR	IMUCOARS	INITIATE COARSE ALIGN MODE
0302	REF	113	LAST	433	34,6454	0	5654	0		TC	BANKCALL	
0303	REF	25	LAST	431	34,6455		30331	0		CADR	IMUSTALL	WAIT FOR IMUCOARS COMPLETION
0304	REF	6	LAST	432	34,6456	0	6237	1		TC	ENDTEST1	
0305	REF	6	LAST	433	34,6457	3	1573	1		XCH	RETAA	
0306	REF	7	LAST	432	34,6460	0	5723	1		TC	BANKJUMP	
0307	REF	9	LAST	433	34,6461	0	5706	0	SMDCALC	TC	MAKECADR	
0308	REF	7	LAST	433	34,6462	5	1573	1		TS	RETAA	
0309	REF	30	LAST	433	34,6463	0	4000	0		TC	INTPRET	
0310					34,6464		52775	0		MXV	1	
0311					34,6465		44776	1		VSLT		
0312	REF	25	LAST	423	34,6466		01425	0			XSM	
0313	REF	12	LAST	432	34,6467		01403	1			STARAD	
0314					34,6470		00002	0			1	
0315	REF	2	LAST	432	34,6471		33477	0		STORE	XDC	
0316					34,6472		52775	0		MXV	1	
0317					34,6473		44776	1		VSLT		
0318	REF	15	LAST	423	34,6474		01433	1			YSM	
0319	REF	13	LAST	433	34,6475		01403	1			STARAD	
0320					34,6476		00002	0			1	
0321	REF	2	LAST	432	34,6477		33505	1		STORE	YDC	
0322					34,6500		41775	1		VXV	1	
0323					34,6501		44776	1		VSLT		
0324	REF	3	LAST	433	34,6502		01477	1			XDC	
0325	REF	3	LAST	433	34,6503		01505	0			YDC	
0326					34,6504		00002	0			1	
0327	REF	2	LAST	432	34,6505		33513	0		STORE	ZDC	
0328					34,6506		76776	0		ITC	0	
0329	REF	3	LAST	372	34,6507		04353	0			CALCGTA	
0330					34,6510		76776	0		ITC	0	
0331	REF	2	LAST	431	34,6511		30634	0			OUTGYR	
0332					34,6512		77576	0		EXIT	0	
0333	REF	8	LAST	433	34,6513	3	1573	1		XCH	RETAA	
0334	REF	8	LAST	433	34,6514	0	5723	1		TC	BANKJUMP	

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0335	REF	10	LAST	433	34,6515	0	5706	0	LATAZCHK	TC	MAKECADR	
0336	REF	9	LAST	433	34,6516	5	1573	1		TS	RETAA	
0337	REF	31	LAST	433	34,6517	0	4000	0		TC	INTPRET	CHECK LATITUDE AND NAVBASE AZIMUTH
0338					34,6520		63776	1		TSLT	0	
0339	REF	8	LAST	372	34,6521		01315	1			<u>LATITUDE</u>	<i>overflow indicator</i>
0340					34,6522		00003	1			2	
0341	REF	39	LAST	430	34,6523		32620	1		STORE	DSPTM1 +1	
0342					34,6524		45175	0		DMOVE	1	
0343					34,6525		76575	1		RTB	EXIT	<i>on</i>
0344	REF	11	LAST	398	34,6526		01317	0			<u>AZIMUTH</u>	
0345	REF	3	LAST	332	34,6527		20325	1			1ST025	
0346	REF	354	LAST	415	34,6530	3	0115	1		XCH	MPAC	
0347	REF	40	LAST	434	34,6531	5	0616	0		TS	DSPTM1	
0348	REF	114	LAST	433	34,6532	0	5654	0		TC	BANKCALL	
0349	REF	1			34,6533		25153	1		CADR	LATAZCK1	
0350	REF	32	LAST	434	34,6534	0	4000	0		TC	INTPRET	
0351					34,6535		43175	0		SMOVE	1	
0352					34,6536		76576	1		RTB		
0353	REF	41	LAST	434	34,6537		00617	1			DSPTM1	
0354	REF	2	LAST	363	34,6540		20304	1			CDULOGIC	
0355	REF	12	LAST	434	34,6541		33317	1		STORE	AZIMUTH	
0356					34,6542		43175	0		SMOVE	1	
0357					34,6543		56776	1		TSRT		
0358	REF	42	LAST	434	34,6544		00620	0			DSPTM1 +1	
0359					34,6545		00003	1			2	
0360	REF	9	LAST	434	34,6546		33315	0		STORE	LATITUDE	
0361					34,6547		77576	0		EXIT	0	
0362	REF	10	LAST	434	34,6550	3	1573	1		XCH	RETAA	
0363	REF	9	LAST	433	34,6551	0	5723	1		TC	BANKJUMP	

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0364	REF	33 LAST 434	34,6552	0 4000 0	TARGSM	TC	INTPRET
0365			34,6553	76776 0		ITC	0
0366	REF	1	34,6554	31755 1			ERTHRVEN
0367			34,6555	76776 0		ITC	0
0368	REF	2 LAST 359	34,6556	03475 1			PROCTARG
0369			34,6557	75176 0		VMOVE	0
0370	REF	7 LAST 363	34,6560	01403 1			TARGET1
0371	REF	3 LAST 432	34,6561	33101 1		STORE	TAR1POS
0372			34,6562	75176 0		VMOVE	0
0373	REF	8 LAST 435	34,6563	01411 1			TARGET1 +6
0374	REF	4 LAST 435	34,6564	33107 1		STORE	TAR1POS +6
0375			34,6565	76776 0		ITC	0
0376	REF	4 LAST 362	34,6566	03446 1			MAKEXSM
0377			34,6567	77576 0		EXIT	0
0378	REF	115 LAST 434	34,6570	0 5654 0		TC	BANKCALL
0379	REF	1	34,6571	24050 1		CADR	POSLOAD

L IMU PERFORMANCE TESTS 2

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0380				34,6572	76576 1	ALGNINIT RTB	0	
0381	REF	3 LAST 339		34,6573	20271 1		ZEROVAC	
0382				34,6574	45176 0	DMOVE	0	
0383	REF	4 LAST 370		34,6575	05174 0		ZERODP	
0384				34,6576	55175 1	COS	1	
0385				34,6577	47176 1	COMP		
0386	REF	10 LAST 434		34,6600	01315 1		LATITUDE	
0387				34,6601	57175 0	SIN	1	
0388				34,6602	41166 0	VDEF	VXSC	(SIN,-COS,0)
0389	REF	11 LAST 436		34,6603	01315 1		LATITUDE	
0390	REF	1		34,6604	31733 1		OMEG/MS	
0391	REF	1		34,6605	33177 0	STORE	VMARK	
0392				34,6606	76576 1	RTB	0	
0393	REF	1		34,6607	20253 1		LOADTIME	
0394	REF	2 LAST 431		34,6610	33175 1	STORE	TMARK	
0395				34,6611	40576 1	ITCQ	0	

L IMU PERFORMANCE TESTS 2

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0396				34,6612	76576 1	EARTH	RTB	0
0397	REF	2 LAST 436		34,6613	20253 1			LOADTIME
0398	REF	10 LAST 431		34,6614	32051 1		STORE	S1
0399				34,6615	47573 0		NOLOD	3
0400				34,6616	66716 1		DSJ	TSLT
0401				34,6617	75652 1		VXSC	MXV
0402				34,6620	50776 1		VAD	
0403	REF	3 LAST 436		34,6621	01175 0			TMARK
0404				34,6622	00013 0			10D
0405	REF	2 LAST 436		34,6623	01177 1			VMARK
0406	REF	26 LAST 433		34,6624	01425 0			XSM
0407	REF	17 LAST 428		34,6625	01521 0			OGC
0408	REF	18 LAST 437		34,6626	33521 1		STORE	OGC
0409				34,6627	45176 0		DMOVE	0
0410	REF	11 LAST 437		34,6630	00051 0			S1
0411	REF	4 LAST 437		34,6631	33175 1		STORE	TMARK
0412				34,6632	40576 1		ITCQ	0

L IMU PERFORMANCE TESTS 2

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0413			34,6633	75575 1	OUTGYR	AXT,1	1
0414			34,6634	55561 0		AST,1	AXT,2
0415			34,6635	00007 0			6
0416			34,6636	00003 1			2
0417			34,6637	00001 0			0
0418			34,6640	56376 0	OUTGYR1	TSRT*	0
0419	REF	19 LAST 437	34,6641	03255 0			OGC +6,1
0420			34,6642	00022 1			8D,2
0421	REF	4 LAST 397	34,6643	36505 1		STORE	GYROD +6,1
0422			34,6644	63375 0		TSLT*	1
0423			34,6645	65376 0		BDSU*	
0424	REF	5 LAST 438	34,6646	02505 0			GYROD +6,1
0425			34,6647	00022 1			8D,2
0426	REF	20 LAST 438	34,6650	03255 0			OGC +6,1
0427	REF	21 LAST 438	34,6651	37255 1		STORE	OGC +6,1
0428			34,6652	51576 1		TIX,1	0
0429	REF	1	34,6653	30641 1			OUTGYR1
0430			34,6654	75575 1		AXT,1	1
0431			34,6655	76401 0		RTB	ITCQ
0432	REF	6 LAST 438	34,6656	01235 1			GYROD
0433	REF	1	34,6657	20376 1			PULSEIMU

0434	REF	11 LAST 434	34,6660	0 5706 0	STORRS�T	TC	MAKECADR
0435	REF	11 LAST 434	34,6661	5 1573 1		TS	RETAA
0436	REF	34 LAST 435	34,6662	0 4000 0		TC	INTPRET
0437			34,6663	71576 0		LXC,1	0
0438	REF	28 LAST 428	34,6664	01225 0			NDXCTR
0439			34,6665	47574 1		NOLOD	2
0440			34,6666	63722 0		TSLT	DMP
0441			34,6667	76576 1		RTB	
0442			34,6670	00011 1			8D
0443	REF	1	34,6671	31735 1			SCALFTR
0444	REF	2 LAST 328	34,6672	20404 0			SGNAGREE
0445	REF	33 LAST 429	34,6673	36201 1		STORE	GENPL,1
0446			34,6674	77576 0		EXIT	0
0447	REF	18 LAST 420	34,6675	3 1230 1		XCH	STOREPL
0448	REF	29 LAST 438	34,6676	2 1224 0		INDEX	NDXCTR
0449	REF	34 LAST 438	34,6677	5 1102 0		TS	GENPL +2
0450	REF	30 LAST 438	34,6700	4 1224 0		CS	NDXCTR
0451	REF	2 LAST 392	34,6701	6 1307 1		AD	MAXPTS2
0452	REF	354 LAST 430	34,6702	1 0000 0		CCS	A
0453	REF	13 LAST 428	34,6703	3 4473 0		CAF	THREE
0454	REF	31 LAST 438	34,6704	6 1224 1		AD	NDXCTR
0455			34,6705	0 6711 0		TC	+4
0456	REF	3 LAST 394	34,6706	1 1313 0		CCS	EROPTN

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0457	REF	7 LAST 433	34,6707	0 6237 1	TC	ENDTEST1
0458	REF	1	34,6710	0 6000 1	TC	MISALIGN

L IMU PERFORMANCE TESTS 2

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0459	REF	32	LAST	438	34,6711	5	1224	1
0460	REF	12	LAST	438	34,6712	3	1573	1
0461	REF	10	LAST	434	34,6713	0	5723	1

TS	NDXCTR
XCH	RETAA
TC	BANKJUMP

L IMU PERFORMANCE TESTS 2

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0462			34,6714	75575 1	TJLAL	AXT,1	1
0463			34,6715	55576 0		AST,1	
0464			34,6716	00007 0			6
0465			34,6717	00003 1			2
0466			34,6720	66375 0	TJLAL1	DSU*	1
0467			34,6721	64740 0		DMP	DAD*
0468	REF	11 LAST 220	34,6722	02017 0			DEL VX +6,1
0469	REF	2 LAST 416	34,6723	02245 0			FILDELX +6,1
0470	REF	1	34,6724	31751 0			VRECTC3
0471	REF	3 LAST 441	34,6725	02245 0			FILDELX +6,1
0472	REF	4 LAST 441	34,6726	36245 1		STORE	FILDELX +6,1
0473			34,6727	51576 1		TIX,1	0
0474	REF	1	34,6730	30721 0			TJLAL1
0475			34,6731	40576 1		ITCQ	0

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0476	REF	62	LAST	431	34,6732	3	5503	1	FALNE1	CAF	TWO
0477	REF	1			34,6733	6	7740	0		AD	FLNDX
0478	REF	31	LAST	431	34,6734	2	0067	1		INDEX	FIXLOC
0479	REF	12	LAST	437	34,6735	5	0050	1		TS	S1
0480	REF	35	LAST	438	34,6736	0	4000	0		TC	INTPRET
0481					34,6737		52775	0		MXV	1
0482					34,6740		44772	0		VSLT	ITC
0483	REF	27	LAST	437	34,6741		01425	0			XSM
0484	REF	14	LAST	433	34,6742		01403	1			STARAD
0485					34,6743		00002	0			1
0486	REF	5	LAST	431	34,6744		04524	0			NBSM
0487					34,6745		47576	0		NOLOD	0
0488	REF	4	LAST	433	34,6746		33477	0		STORE	XDC
0489					34,6747		52775	0		MXV	1
0490					34,6750		44772	0		VSLT	ITC
0491	REF	16	LAST	433	34,6751		01433	1			YSM
0492	REF	15	LAST	442	34,6752		01403	1			STARAD
0493					34,6753		00002	0			1
0494	REF	6	LAST	442	34,6754		04524	0			NBSM
0495					34,6755		47576	0		NOLOD	0
0496	REF	4	LAST	433	34,6756		33505	1		STORE	YDC
0497					34,6757		41775	1		VXV	1
0498					34,6760		44776	1		VSLT	
0499	REF	5	LAST	442	34,6761		01477	1			XDC
0500	REF	5	LAST	442	34,6762		01505	0			YDC
0501					34,6763		00002	0			1
0502	REF	3	LAST	433	34,6764		33513	0		STORE	ZDC
0503					34,6765		76776	0		ITC	0
0504	REF	4	LAST	433	34,6766		04353	0			CALCGTA
0505					34,6767		76776	0		ITC	0
0506	REF	3	LAST	433	34,6770		30634	0			OUTGYR
0507					34,6771		77576	0		EXIT	0
0508	REF	116	LAST	435	34,6772	0	5654	0		TC	BANKCALL
0509	REF	26	LAST	433	34,6773		30331	0		CADR	IMUSTALL
0510	REF	8	LAST	439	34,6774	0	6237	1		TC	ENDTEST1
0511	REF	117	LAST	442	34,6775	0	5654	0		TC	BANKCALL
0512	REF	1			34,6776		24600	1		CADR	FALNED

L IMU PERFORMANCE TESTS 2

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0513			34,6777	47575 0	VERTRECT	NOLOD	1
0514			34,7000	51622 0		VXM	VSLT
0515	REF	28 LAST 442	34,7001	01425 0			XSM
0516			34,7002	00002 0			1
0517			34,7003	32001 1		STORE	0
0518			34,7004	45176 0		DMOVE	0
0519	REF	13 LAST 379	34,7005	00043 0			VAC +2
0520			34,7006	47176 1		COMP	0
0521	REF	14 LAST 443	34,7007	00045 0			VAC +4
0522			34,7010	43175 0		SMOVE	1
0523			34,7011	41176 1		VDEF	
0524	REF	5 LAST 436	34,7012	05174 0			ZERODP
0525			34,7013	47575 0		NOLOD	1
0526			34,7014	75622 0		VXSC	VSLT
0527	REF	1	34,7015	31737 0			INTCON1
0528			34,7016	00002 0			1
0529			34,7017	74773 1		VSU	3
0530			34,7020	71766 0		BOV	VXSC
0531			34,7021	44642 1		VSLT	VAD
0532			34,7022	52642 0		MXV	VAD
0533			34,7023	00001 0			0
0534			34,7024	00023 0			18D
0535	REF	1	34,7025	31037 1			ERECTND
0536	REF	2 LAST 443	34,7026	31737 0			INTCON1
0537			34,7027	00002 0			1
0538			34,7030	77777 0			-
0539	REF	29 LAST 443	34,7031	01425 0			XSM
0540	REF	22 LAST 438	34,7032	01521 0			OGC
0541	REF	23 LAST 443	34,7033	33521 1		STORE	OGC
0542			34,7034	75176 0		VMOVE	0
0543			34,7035	32023 1		STORE	18D
0544			34,7036	40576 1	ERECTND	ITCQ	0

L IMU PERFORMANCE TESTS 2

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0545	REF	15	LAST	421	34,7037	2	1223	1	POSNJUMP	INDEX	POSITON
0546					34,7040	0	7041	0		TC	+1
0547	REF	9	LAST	442	34,7041	0	6237	1		TC	ENDTEST1
0548	REF	1			34,7042	0	7050	0		TC	POS1
0549	REF	1			34,7043	0	7055	0		TC	POS2
0550	REF	1			34,7044	0	7075	1		TC	POS3
0551	REF	1			34,7045	0	7121	1		TC	POS4
0552	REF	118	LAST	442	34,7046	0	5654	0		TC	BANKCALL
0553	REF	1			34,7047		24076	0		CADR	POSNRETN
0554	REF	142	LAST	430	34,7050	4	4516	0	POS1	CS	ONE
0555	REF	3	LAST	394	34,7051	5	1226	0		TS	PIPNDX
0556	REF	63	LAST	442	34,7052	4	5503	0		CS	TWO
0557	REF	4	LAST	444	34,7053	5	1227	1		TS	PIPNDX +1
0558	REF	2	LAST	444	34,7054	0	7046	1		TC	POS1 -2

0559	REF	36	LAST	442	34,7055	0	4000	0	POS2	TC	INTPRET
0560					34,7056		75175	0		VMOVE	1
0561					34,7057		47176	1		COMP	
0562	REF	30	LAST	443	34,7060		01425	0			XSM
0563					34,7061		75176	0		VMOVE	0
0564	REF	12	LAST	423	34,7062		01441	1			ZSM
0565	REF	31	LAST	444	34,7063		33425	1		STORE	XSM
0566					34,7064		75176	0		VMOVE	0
0567					34,7065		77777	0			-
0568	REF	13	LAST	444	34,7066		33441	0		STORE	ZSM
0569					34,7067		77576	0		EXIT	0
0570	REF	160	LAST	429	34,7070	4	5501	1		CS	ZERO
0571	REF	5	LAST	444	34,7071	5	1226	0		TS	PIPNDX
0572	REF	143	LAST	444	34,7072	4	4516	0		CS	ONE
0573	REF	6	LAST	444	34,7073	5	1227	1		TS	PIPNDX +1
0574	REF	3	LAST	444	34,7074	0	7046	1		TC	POS1 -2

0575	REF	37	LAST	444	34,7075	0	4000	0	POS3	TC	INTPRET
0576					34,7076		75176	0		VMOVE	0
0577	REF	32	LAST	444	34,7077		01425	0			XSM
0578					34,7100		75176	0		VMOVE	0
0579	REF	14	LAST	444	34,7101		01441	1			ZSM
0580					34,7102		75176	0		VMOVE	0
0581	REF	17	LAST	442	34,7103		01433	1			YSM
0582	REF	15	LAST	444	34,7104		33441	0		STORE	ZSM
0583					34,7105		75176	0		VMOVE	0
0584					34,7106		77777	0			-
0585	REF	33	LAST	444	34,7107		33425	1		STORE	XSM
0586					34,7110		75176	0		VMOVE	0
0587					34,7111		77777	0			-

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0588	REF	18	LAST	444	34,7112	33433	0	STORE	YSM	
0589					34,7113	77576	0	EXIT	0	
0590	REF	161	LAST	444	34,7114	4	5501	1	CS	ZERO
0591	REF	7	LAST	444	34,7115	5	1226	0	TS	PIPNDX
0592	REF	64	LAST	444	34,7116	4	5503	0	CS	TWO
0593	REF	8	LAST	445	34,7117	5	1227	1	TS	PIPNDX +1
0594	REF	4	LAST	444	34,7120	0	7046	1	TC	POS1 -2

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0595	REF	38	LAST	444	34,7121	0 4000 0	POS4	TC	INTPRET	
0596					34,7122	41775 1		VXV	1	
0597					34,7123	73176 0		UNIT		
0598	REF	19	LAST	445	34,7124	01433 1			YSM	
0599	REF	16	LAST	444	34,7125	01441 1			ZSM	
0600	REF	34	LAST	444	34,7126	33425 1		STORE	XSM	
0601					34,7127	77576 0		EXIT	0	
0602	REF	5	LAST	445	34,7130	0 7046 1		TC	POS1 -2	
0603	REF	1			34,7131	3 7741 1	NBPOSPL	CAF	MTRXLD	
0604	REF	67	LAST	421	34,7132	5 0034 0		TS	OVCTR	ZERO STARAD
0605	REF	162	LAST	445	34,7133	3 5501 0		CAF	ZERO	
0606	REF	68	LAST	446	34,7134	2 0034 1		INDEX	OVCTR	
0607	REF	16	LAST	442	34,7135	5 1402 0		TS	STARAD	
0608	REF	69	LAST	446	34,7136	1 0034 1		CCS	OVCTR	
0609	REF	2	LAST	400	34,7137	0 7132 0		TC	NBPOSPL +1	
0610	REF	39	LAST	446	34,7140	0 4000 0		TC	INTPRET	SETS UP AZIMUTH AND VERTICAL VECTORS
0611					34,7141	76576 1		RTB	0	FOR AXISGEN, RESULTS TO BE USED IN CALCGA
0612	REF	4	LAST	436	34,7142	20271 1			ZEROVAC	TO COMPUTE COARSE ALIGN ANGLES
0613					34,7143	53575 0		AXC,1	1	
0614					34,7144	57557 1		XSJ,1	VMOVE*	
0615	REF	1			34,7145	31671 0			SCNBAZ	
0616	REF	10	LAST	423	34,7146	01232 0			NBPOS	
0617					34,7147	00001 0			0,1	
0618	REF	17	LAST	446	34,7150	33403 0		STORE	STARAD	AZIMUTH IN NB COORDS
0619					34,7151	53575 0		AXC,1	1	
0620					34,7152	57557 1		XSJ,1	VMOVE*	
0621	REF	1			34,7153	31711 1			SCNBVER	
0622	REF	11	LAST	446	34,7154	01232 0			NBPOS	
0623					34,7155	00001 0			0,1	
0624	REF	18	LAST	446	34,7156	33411 0		STORE	STARAD +6	VERTICAL IN NB COORDS
0625					34,7157	55175 1		COS	1	
0626					34,7160	47176 1		COMP		
0627	REF	13	LAST	434	34,7161	01317 0			AZIMUTH	
0628					34,7162	32011 0		STORE	8D	
0629					34,7163	57176 0		SIN	0	
0630	REF	14	LAST	446	34,7164	01317 0			AZIMUTH	
0631					34,7165	32013 1		STORE	10D	AZIMUTH IN CER
0632					34,7166	75176 0		VMOVE	0	
0633	REF	1			34,7167	31717 1			LABNBVER	
0634					34,7170	32015 1		STORE	12D	VERTICAL IN CER
0635					34,7171	76776 0		ITC	0	
0636	REF	4	LAST	432	34,7172	04761 0			AXISGEN	
0637					34,7173	75176 0		VMOVE	0	
0638	REF	6	LAST	442	34,7174	01477 1			XDC	

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0639	REF	19 LAST 446	34,7175	33403 0	STORE STARAD
0640			34,7176	75176 0	VMOVE 0
0641	REF	6 LAST 442	34,7177	01505 0	YDC
0642	REF	20 LAST 447	34,7200	33411 0	STORE STARAD +6
0643			34,7201	75176 0	VMOVE 0
0644	REF	4 LAST 442	34,7202	01513 1	ZDC
0645	REF	21 LAST 447	34,7203	33417 0	STORE STARAD +12D
0646			34,7204	77576 0	EXIT 0
0647	REF	119 LAST 444	34,7205	0 5654 0	TC BANKCALL
0648	REF	1	34,7206	25513 1	CADR POSSET

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Line	REF	TEST	LAST	Value	Unit	RESULTS	CCS	TESTNDX
0649	REF	18	LAST	424		RESULTS	CCS	TESTNDX
0650	REF	2	LAST	409			TC	CDUCALC
0651	REF	1					TC	PIPCALC
0652	REF	3	LAST	448			TC	CDUCALC
0653	REF	25	LAST	420		SFCALC	CS	DATAPL +4
0654	REF	26	LAST	448			AD	DATAPL +8D
0655	REF	27	LAST	448			TS	DATAPL
0656	REF	40	LAST	446			TC	INTPRET
0657							TSJ	1
0658							TSLT	ROUND
0659	REF	28	LAST	448				DATAPL +9D
0660	REF	29	LAST	448				DATAPL +5
0661								14D
0662							S MOVE	2
0663							DMP	DDV
0664							RTB	
0665	REF	30	LAST	448				DATAPL
0666	REF	1						DC585
0667								0
0668	REF	3	LAST	438				SGNAGREE
0669	REF	8	LAST	428			STORE	DSPTM2
0670							EXIT	0
0671	REF	18	LAST	426			TC	GRABDSP
0672	REF	18	LAST	426			TC	PREGBSY
0673	REF	120	LAST	447			TC	BANKCALL
0674	REF	1					CADR	FINISH

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0675	REF	41	LAST	448	34,7241	0 4000 0	CDUCALC	TC	INTPRET	
0676					34,7242	66774 0		DSJ	2	
0677					34,7243	61722 1		BDDV	DMP	
0678					34,7244	76576 1		RTB		
0679	REF	31	LAST	448	34,7245	01245 0			DATAPL +2	
0680	REF	32	LAST	449	34,7246	01243 0			DATAPL	
0681	REF	35	LAST	438	34,7247	01215 0			GENPL +76D	
0682	REF	1			34,7250	31745 0			ERUNITS	2DEC.66666
0683	REF	4	LAST	448	34,7251	20404 0			SGNAGREE	
0684	REF	9	LAST	448	34,7252	32622 0		STORE	DSPTM2	
0685					34,7253	77576 0		EXIT	0	
0686	REF	19	LAST	448	34,7254	0 3302 0		TC	GRABDSP	
0687	REF	19	LAST	448	34,7255	0 3310 0		TC	PREGBSY	
0688	REF	121	LAST	448	34,7256	0 5654 0		TC	BANKCALL	
0689	REF	2	LAST	448	34,7257	25256 1		CADR	FINISH	

L IMU PERFORMANCE TESTS 2

USER'S OWN PAGE NO. 25

0690	REF	42 LAST 449	34,7260	0 4000 0	PIPCALC	TC	INTPRET
0691			34,7261	76576 1		RTB	0
0692	REF	1	34,7262	20265 1			FRESHPD
0693			34,7263	54775 0		TSJ	1
0694			34,7264	63631 0		TSJT	ROUND
0695	REF	36 LAST 449	34,7265	01105 1			GENPL +4
0696	REF	33 LAST 449	34,7266	01244 1			DATAPL +1
0697			34,7267	00014 1			11D
0698			34,7270	51176 0		DSQ	0
0699			34,7271	00001 0			0
0700			34,7272	64775 0		DMP	1
0701			34,7273	41176 1		VDEF	
0702			34,7274	00001 0			0
0703			34,7275	00003 1			2
0704	REF	37 LAST 450	34,7276	33132 1		STORE	GENPL +25D
0705			34,7277	54775 0		TSJ	1
0706			34,7300	63631 0		TSJT	ROUND
0707	REF	38 LAST 450	34,7301	01112 1			GENPL +9D
0708	REF	34 LAST 450	34,7302	01244 1			DATAPL +1
0709			34,7303	00014 1			11D
0710			34,7304	51176 0		DSQ	0
0711			34,7305	00001 0			0
0712			34,7306	64775 0		DMP	1
0713			34,7307	41176 1		VDEF	
0714			34,7310	00001 0			0
0715			34,7311	00003 1			2
0716	REF	39 LAST 450	34,7312	33140 1		STORE	GENPL +31D
0717			34,7313	54775 0		TSJ	1
0718			34,7314	63631 0		TSJT	ROUND
0719	REF	40 LAST 450	34,7315	01117 1			GENPL +14D
0720	REF	35 LAST 450	34,7316	01244 1			DATAPL +1D
0721			34,7317	00014 1			11D
0722			34,7320	51176 0		DSQ	0
0723			34,7321	00001 0			0
0724			34,7322	64775 0		DMP	1
0725			34,7323	41176 1		VDEF	
0726			34,7324	00001 0			0
0727			34,7325	00003 1			2
0728	REF	41 LAST 450	34,7326	33146 1		STORE	GENPL +37D
0729			34,7327	41775 1		VXV	1
0730			34,7330	42776 1		DOT	
0731	REF	42 LAST 450	34,7331	01140 0			GENPL +31D
0732	REF	43 LAST 450	34,7332	01146 0			GENPL +37D
0733	REF	44 LAST 450	34,7333	01132 0			GENPL +25D
0734	REF	45 LAST 450	34,7334	33156 0		STORE	GENPL +45D
0735			34,7335	45176 0		DMOVE	0
0736	REF	46 LAST 450	34,7336	01110 0			GENPL +7
0737	REF	47 LAST 450	34,7337	33132 1		STORE	GENPL +25D
0738			34,7340	45176 0		DMOVE	0
0739	REF	48 LAST 450	34,7341	01115 0			GENPL +12D

T1(2) IN 2,3

T2(2) IN 6

D2

L IMU PERFORMANCE TESTS 2

USER'S OWN PAGE NO. 26

0740	REF	49	LAST	450	34,7342	33140	1	STORE	GENPL +31D
0741					34,7343	45176	0	DMOVE	0
0742	REF	50	LAST	451	34,7344	01122	1		GENPL +17D
0743	REF	51	LAST	451	34,7345	33146	1	STORE	GENPL +37D
0744					34,7346	41774	0	VXV	2
0745					34,7347	42712	0	DOT	DDV
0746					34,7350	64771	1	DMP	RTB
0747	REF	52	LAST	451	34,7351	01140	0		GENPL +31D
0748	REF	53	LAST	451	34,7352	01146	0		GENPL +37D
0749	REF	54	LAST	451	34,7353	01132	0		GENPL +25D
0750	REF	55	LAST	451	34,7354	01156	1		GENPL +45D
0751	REF	1			34,7355	31747	1		ERUNITS2
0752	REF	5	LAST	449	34,7356	20404	0		SGNAGREE
0753	REF	10	LAST	449	34,7357	32622	0	STORE	DSPTM2
0754					34,7360	77576	0	EXIT	0
0755	REF	20	LAST	449	34,7361	0 3302	0	TC	GRABDSP
0756	REF	20	LAST	449	34,7362	0 3310	0	TC	PREGBSY
0757	REF	122	LAST	449	34,7363	0 5654	0	TC	BANKCALL
0758	REF	3	LAST	449	34,7364	25256	1	CADR	FINISH

L IMU PERFORMANCE TESTS 2

USER'S OWN PAGE NO. 27

0759	REF	43	LAST	450	34,7365	0 4000 0	CHKCALC	TC	INTPRET	
0760					34,7366	76575 1		RTB	1	
0761					34,7367	76576 1		RTB		
0762	REF	5	LAST	446	34,7370	20271 1			ZEROVAC	
0763	REF	2	LAST	450	34,7371	20265 1			FRESHPD	
0764					34,7372	54775 0		TSJ	1	
0765					34,7373	63631 0		TSLT	ROUND	
0766	REF	36	LAST	450	34,7374	01264 0			DATAPL +17D	
0767	REF	37	LAST	452	34,7375	01245 0			DATAPL +2	
0768					34,7376	00015 0			12D	
0769					34,7377	66774 0		DSJ	2	
0770					34,7400	63722 0		TSLT	DMP	
0771					34,7401	62776 0		DDV		
0772	REF	38	LAST	452	34,7402	01262 0			DATAPL +15D	
0773	REF	39	LAST	452	34,7403	01243 0			DATAPL	
0774					34,7404	00015 0			12D	
0775	REF	2	LAST	448	34,7405	31743 0			DC585	GZ IN 0,1
0776					34,7406	54775 0		TSJ	1	
0777					34,7407	63631 0		TSLT	ROUND	
0778	REF	40	LAST	452	34,7410	01271 1			DATAPL +22D	
0779	REF	41	LAST	452	34,7411	01252 0			DATAPL +7	
0780					34,7412	00015 0			12D	
0781					34,7413	66774 0		DSJ	2	
0782					34,7414	63722 0		TSLT	DMP	
0783					34,7415	62776 0		DDV		
0784	REF	42	LAST	452	34,7416	01267 0			DATAPL +20D	
0785	REF	43	LAST	452	34,7417	01250 1			DATAPL +5	
0786					34,7420	00015 0			12D	
0787	REF	3	LAST	452	34,7421	31743 0			DC585	GY IN 2,3
0788					34,7422	54775 0		TSJ	1	
0789					34,7423	63631 0		TSLT	ROUND	
0790	REF	44	LAST	452	34,7424	01276 0			DATAPL +27D	
0791	REF	45	LAST	452	34,7425	01257 0			DATAPL +12D	
0792					34,7426	00015 0			12D	
0793	REF	3	LAST	406	34,7427	33216 1		STORE	TESTTIME	
0794					34,7430	66774 0		DSJ	2	
0795					34,7431	63722 0		TSLT	DMP	
0796					34,7432	62603 0		DDV	VDEF	
0797	REF	46	LAST	452	34,7433	01274 1			DATAPL +25D	
0798	REF	47	LAST	452	34,7434	01255 1			DATAPL +10D	
0799					34,7435	00015 0			12D	
0800	REF	4	LAST	452	34,7436	31743 0			DC585	
0801	REF	4	LAST	452	34,7437	01216 0			TESTTIME	G IN 0,1,2,3,4,5
0802					34,7440	71175 1		ABVAL	1	
0803					34,7441	63771 0		TSLT	RTB	
0804					34,7442	00001 0			0	
0805					34,7443	00002 0			1	
0806	REF	6	LAST	451	34,7444	20404 0			SGNAGREE	
0807	REF	11	LAST	451	34,7445	32622 0		STORE	DSPTM2	
0808					34,7446	77576 0		EXIT	0	

L		IMU PERFORMANCE TESTS 2						USER'S OWN PAGE NO. 28		
0809	REF	21	LAST	451	34,7447	0	3302	0	TC	GRABDSP
0810	REF	21	LAST	451	34,7450	0	3310	0	TC	PREGBSY
0811	REF	123	LAST	451	34,7451	0	5654	0	TC	BANKCALL
0812	REF	3	LAST	414	34,7452	25205	1		CADR	SHOW
0813	REF	44	LAST	452	34,7453	0	4000	0	TC	INTPRET
0814					34,7454	45176	0		DMOVE	0
0815	REF	48	LAST	452	34,7455	01303	0			DATAPL +32D
0816					34,7456	45176	0		DMOVE	0
0817	REF	49	LAST	453	34,7457	01301	1			DATAPL +30D
0818					34,7460	45174	1		DMOVE	2
0819					34,7461	41153	0		VDEF	UNIT
0820					34,7462	44776	1		VSLT	
0821	REF	50	LAST	453	34,7463	01255	1			DATAPL +10D
0822					34,7464	00002	0			1
0823					34,7465	45176	0		DMOVE	0
0824	REF	51	LAST	453	34,7466	01307	1			DATAPL +36D
0825					34,7467	45176	0		DMOVE	0
0826	REF	52	LAST	453	34,7470	01305	0			DATAPL +34D
0827					34,7471	45174	1		DMOVE	2
0828					34,7472	41153	0		VDEF	UNIT
0829					34,7473	44776	1		VSLT	
0830	REF	53	LAST	453	34,7474	01274	1			DATAPL +25D
0831					34,7475	00002	0			1
0832					34,7476	41773	1		VXV	3
0833					34,7477	71116	1		ABVAL	TSLT
0834					34,7500	62722	1		DDV	DMP
0835					34,7501	76576	1		RTB	
0836					34,7502	00007	0			6
0837					34,7503	00015	0			12D
0838					34,7504	00002	0			1
0839	REF	5	LAST	452	34,7505	01216	0			TESTTIME
0840	REF	1			34,7506	31753	1			ERUNITS1
0841	REF	7	LAST	452	34,7507	20404	0			SGNAGREE
0842	REF	12	LAST	452	34,7510	32622	0		STORE	DSPTM2
0843					34,7511	77576	0		EXIT	0
0844	REF	124	LAST	453	34,7512	0	5654	0	TC	BANKCALL
0845	REF	4	LAST	453	34,7513	25205	1		CADR	SHOW
0846	REF	10	LAST	444	34,7514	0	6237	1	TC	ENDTEST1

V1 IN 6,7,8,9,10,11

V2 IN 12,13,14,15,1 ,17

L IMU PERFORMANCE TESTS 2

USER'S OWN PAGE NO. 29

0847	REF	12	LAST	438	34,7515	0	5706	0	STOPHOR	TC	MAKECADR
0848	REF	13	LAST	440	34,7516	5	1573	1		TS	RETAA
0849	REF	45	LAST	453	34,7517	0	4000	0		TC	INTPRET
0850					34,7520		76776	0		ITC	0
0851	REF	2	LAST	431	34,7521		30613	0			EARTH
0852					34,7522		76776	0		ITC	0
0853	REF	4	LAST	442	34,7523		30634	0			OUTGYR
0854					34,7524		77576	0		EXIT	0
0855	REF	125	LAST	453	34,7525	0	5654	0		TC	BANKCALL
0856	REF	27	LAST	442	34,7526		30331	0		CADR	IMUSTALL
0857	REF	11	LAST	453	34,7527	0	6237	1		TC	ENDTEST1
0858	REF	14	LAST	454	34,7530	3	1573	1		XCH	RETAA
0859	REF	11	LAST	440	34,7531	0	5723	1		TC	BANKJUMP

L IMU PERFORMANCE TESTS 2

USER'S OWN PAGE NO. 30

0860	REF	13	LAST	454	34,7532	0	5706	0	SCRINTP	TC	MAKECADR	
0861	REF	15	LAST	454	34,7533	5	1573	1		TS	RETAA	
0862	REF	46	LAST	454	34,7534	0	4000	0		TC	INTPRET	
0863					34,7535		47575	0		NOLOD	1	
0864					34,7536		54776	0		TSJ		
0865	REF	54	LAST	453	34,7537		01250	1			DATAPL +5	
0866					34,7540		32001	1		STORE	0	T1:T0
0867					34,7541		47575	0		NOLOD	1	
0868					34,7542		60776	1		TAD		
0869	REF	55	LAST	455	34,7543		01250	1			DATAPL +5	
0870	REF	56	LAST	455	34,7544		33250	0		STORE	DATAPL +5	TN
0871					34,7545		77174	0		TMOVE	2	
0872					34,7546		63631	0		TSLT	ROUND	
0873					34,7547		64742	1		DMP	DAD	
0874					34,7550		00001	0			0	
0875					34,7551		00015	0			12D	
0876	REF	56	LAST	451	34,7552		01101	0			GENPL	
0877	REF	57	LAST	455	34,7553		01103	1			GENPL +2	
0878	REF	58	LAST	455	34,7554		33103	0		STORE	GENPL +2	
0879					34,7555		77576	0		EXIT	0	
0880	REF	10	LAST	419	34,7556	1	1220	1		CCS	COUNTPL	
0881	REF	1			34,7557	0	7574	0		TC	SUMSUM1	
0882	REF	47	LAST	455	34,7560	0	4000	0		TC	INTPRET	
0883					34,7561		71576	0		LXC,1	0	
0884	REF	16	LAST	421	34,7562		01225	0			RESULTCT	FIRST=4
0885					34,7563		77176	1		TMOVE	0	SECOND=9
0886	REF	57	LAST	455	34,7564		01250	1			DATAPL +5	
0887	REF	59	LAST	455	34,7565		36201	1		STORE	GENPL,1	
0888					34,7566		45176	0		DMOVE	0	
0889	REF	60	LAST	455	34,7567		01103	1			GENPL +2	
0890	REF	61	LAST	455	34,7570		36207	1		STORE	GENPL +3,1	
0891					34,7571		77576	0		EXIT	0	
0892	REF	16	LAST	455	34,7572	3	1573	1		XCH	RETAA	
0893	REF	12	LAST	454	34,7573	0	5723	1		TC	BANKJUMP	
0894	REF	126	LAST	454	34,7574	0	5654	0	SUMSUM1	TC	BANKCALL	
0895	REF	1			34,7575		25456	1		CADR	SUMSUM	

L IMU PERFORMANCE TESTS 2

USER'S OWN PAGE NO. 31

0896	REF	48	LAST	455	34,7576	0 4000 0	FALNED1	TC	INTPRET
0897					34,7577	76776 0		ITC	0
0898	REF	1			34,7600	30573 0			ALGNINIT
0899					34,7601	77576 0		EXIT	0
0900	REF	19	LAST	448	34,7602	1 1232 1		CCS	TESTNDX
0901	REF	1			34,7603	0 7666 0		TC	LABTEST1
0902					34,7604	0 7606 0		TC	+2
0903					34,7605	0 7606 0		TC	+1
0904	REF	127	LAST	455	34,7606	0 5654 0		TC	BANKCALL
0905	REF	5	LAST	429	34,7607	25331 1		CADR	OGCZERO
0906	REF	128	LAST	456	34,7610	0 5654 0		TC	BANKCALL
0907	REF	2	LAST	416	34,7611	25343 1		CADR	FLTRZERO
0908	REF	8	LAST	408	34,7612	3 4510 1	FRECT	CAF	BIT7
0909	REF	19	LAST	438	34,7613	5 1230 1		TS	STOREPL
0910	REF	163	LAST	446	34,7614	3 5501 0		CAF	ZERO
0911	REF	12	LAST	406	34,7615	5 0044 1		TS	PIPAX
0912	REF	10	LAST	398	34,7616	5 0045 0		TS	PIPAY
0913	REF	6	LAST	398	34,7617	5 0046 0		TS	PIPAZ
0914	REF	7	LAST	419	34,7620	3 3232 1	WARTNEW	CAF	TEN
0915	REF	11	LAST	455	34,7621	5 1220 0		TS	COUNTPL
0916					34,7622	2 0017 0		INHINT	
0917	REF	1			34,7623	3 3562 0		CAF	50DEC
0918	REF	58	LAST	419	34,7624	0 2173 0		TC	WAITLIST
0919	REF	1			34,7625	71631 0		CADR	WARTNEW1
0920	REF	1			34,7626	3 7630 0		CAF	WART2ADR
0921	REF	17	LAST	419	34,7627	0 2127 1		TC	JOBSLEEP
0922	REF	1			34,7630	71634 0	WART2ADR	CADR	WART2NEW
0923	REF	2	LAST	456	34,7631	3 7630 0	WARTNEW1	CAF	WART2ADR
0924	REF	15	LAST	419	34,7632	0 2060 0		TC	JOBWAKE
0925	REF	44	LAST	420	34,7633	0 2256 1		TC	TASKOVER
0926	REF	49	LAST	456	34,7634	0 4000 0	WART2NEW	TC	INTPRET
0927					34,7635	76576 1		RTB	0
0928	REF	1			34,7636	20346 1			READPIPS
0929	REF	12	LAST	441	34,7637	33002 0		STORE	DELVX
0930					34,7640	76776 0		ITC	0
0931	REF	1			34,7641	30715 1			TJLAL
0932					34,7642	77576 0		EXIT	0
0933	REF	12	LAST	456	34,7643	1 1220 1		CCS	COUNTPL
0934	REF	1			34,7644	0 7621 0		TC	WARTNEW +1
0935	REF	50	LAST	456	34,7645	0 4000 0		TC	INTPRET
0936					34,7646	75175 0		VMOVE	1
0937					34,7647	76776 0		ITC	
0938	REF	5	LAST	441	34,7650	01115 0			FILDELX
0939	REF	1			34,7651	31000 0			VERTRECT
0940					34,7652	76776 0		ITC	0
0941	REF	3	LAST	454	34,7653	30613 0			EARTHRE
0942					34,7654	76776 0		ITC	0
0943	REF	5	LAST	454	34,7655	30634 0			OUTGYR
0944					34,7656	77576 0		EXIT	0
0945	REF	129	LAST	456	34,7657	0 5654 0		TC	BANKCALL

VERTICAL ERECTION BY NULLING PIPAS

CALL A SPADE A SPADE...HOMER

L IMU PERFORMANCE TESTS 2

USER'S OWN PAGE NO. 32

0946	REF	28	LAST	454	34,7660	30331 0	CADR	IMUSTALL
0947	REF	12	LAST	454	34,7661	0 6237 1	TC	ENDTEST1
0948	REF	20	LAST	456	34,7662	1 1230 0	CCS	STOREPL
0949	REF	2	LAST	409	34,7663	0 7613 1	TC	FRECT +1
0950	REF	130	LAST	456	34,7664	0 5654 0	TC	BANKCALL
0951	REF	1			34,7665	24721 0	CADR	TSTJUMP
0952	REF	131	LAST	457	34,7666	0 5654 0	LABTEST1 TC	BANKCALL
0953	REF	3	LAST	406	34,7667	24751 1	CADR	LABTEST

L IMU PERFORMANCE TESTS 2

USER'S OWN PAGE NO. 33

0954	34,7670	67222	1	SCNBAZ	2DEC	-.27232	AZIMUTH OF NB IS ERAD IN AS Z AXIS EAST
C0954	34,7671	51710	0				
0955	34,7672	00000	1		2DEC	0	
C0955	34,7673	00000	1				
0956	34,7674	15327	0		2DEC	.4194335	
C0956	34,7675	37747	1				
0957	34,7676	00000	1	LABNBAZ	2DEC	0	
C0957	34,7677	00000	1				
0958	34,7700	00000	1		2DEC	0	
C0958	34,7701	00000	1				
0959	34,7702	20000	0		2DEC	.5	
C0959	34,7703	00000	1				
0960	34,7704	00000	1	LABNBAZ1	2DEC	0	
C0960	34,7705	00000	1				
0961	34,7706	00000	1		2DEC	0	
C0961	34,7707	00000	1				
0962	34,7710	15327	0	SCNBVER	2DEC	.4194335	
C0962	34,7711	37747	1				
0963	34,7712	00000	1		2DEC	0	
C0963	34,7713	00000	1				
0964	34,7714	10555	0		2DEC	.27232	
C0964	34,7715	26067	1				
0965	34,7716	20000	0	LABNBVER	2DEC	.5	
C0965	34,7717	00000	1				
0966	34,7720	00000	1		2DEC	0	
C0966	34,7721	00000	1				
0967	34,7722	00000	1		2DEC	0	
C0967	34,7723	00000	1				
0968	34,7724	00000	1	LBNBVER1	2DEC	0	
C0968	34,7725	00000	1				
0969	34,7726	57777	1		2DEC	-.5	
C0969	34,7727	77777	0				
0970	34,7730	00666	1	V06N66E	OCT	00666	
0971	34,7731	00130	0	V01N30E	OCT	00130	
0972	34,7732	03711	0	OMEG/MS	2DEC	.12169524	
C0972	34,7733	33265	0				
0973	34,7734	24365	1	SCALFTR	2DEC	.64	
C0973	34,7735	30244	0				
0974	34,7736	24000	1	INTCON1	DEC	40 B+8	
0975	34,7737	00000	1		DEC	0	
0976	34,7740	01100	1	FLNDX	ADRES	GENPL	
0977	34,7741	00021	1	MTRXLD	DEC	17	
0978	34,7742	01111	1	DC585	2DEC	585 B+14	
C0978	34,7743	00000	1				
0979	34,7744	00406	0	ERUNITS	2DEC	4308205 B-28	CONSTANT CORRECTED FOR SIDEREAL RATE
C0979	34,7745	36355	1				
0980	34,7746	00002	0	ERUNITS2	2DEC	38357 B-28	
C0980	34,7747	12725	1				
0983	34,7750	03146	1	VRECTC3	2DEC	.1	
C0983	34,7751	14632	0				

L IMU PERFORMANCE TESTS 2

USER'S OWN PAGE NO. 34

0984	34,7752	00051 0	ERUNITS1 2DEC	685683 B-28
C0984	34,7753	33163 0		

L IMU PERFORMANCE TESTS 2

USER'S OWN PAGE NO. 35

0985				34,7754	76576 1	ERTHRVEN RTB	0
0986	REF	6 LAST 452		34,7755	20271 1		ZEROVAC
0987				34,7756	55176 1	COS	0
0988	REF	12 LAST 436		34,7757	01315 1		LATITUDE
0989				34,7760	45176 0	DMOVE	0
0990	REF	6 LAST 443		34,7761	05174 0		ZERODP
0991				34,7762	57175 0	SIN	1
0992				34,7763	41166 0	VDEF	VXSC
0993	REF	13 LAST 460		34,7764	01315 1		LATITUDE
0994	REF	2 LAST 436		34,7765	31733 1		OMEG/MS
0995	REF	3 LAST 437		34,7766	33177 0	STORE	VMARK
0996				34,7767	40576 1	ITCQ	0

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 1

R0001 CALGTA GIVEN THE DESIRED XD,YD AND ZD UNIT VECTORS REFERED TO
 R0002 ----- PRESENT STABLE MEMBER ORIENTATION, THIS SUBROUTINE FINDS
 R0003 THETAY, THETAZ, AND THETAX, THE REQUIRED GYRO TORQUE
 R0004 ANGLES IN THE ORDER TO BE APPLIED TO BRING THE STABLE
 R0005 MEMBER INTO THE DESIRED ORIENTATION.

0006				22,6352		BANK	22	
0007				22,6352	45575 1	CALCGTA	ITA	1
0008				22,6353	45176 0		DMOVE	
0009	REF	7 LAST 373		22,6354	00052 0		S2	
0010	REF	1		22,6355	01477 1		XDSMPR	
								DEFINE THE VECTOR ZPRIME WHICH IS THE
								IMAGE OF Z UNDER THE ROTATION ABOUT Y
0011				22,6356	45176 0		DMOVE	0
0012	REF	7 LAST 460		22,6357	05174 0		ZERODP	
								$ZPRIME = (-XD_2, 0, XD_0)$
0013				22,6360	47175 1		COMP	1
0014				22,6361	41153 0		VDEF	UNIT
0015	REF	2 LAST 461		22,6362	01503 0			XDSMPR +4
0016	REF	1		22,6363	32027 0		STORE	ZPRIME
								SET UP COSTH AND SINTH TO ENTER
0017				22,6364	56776 1		TSRT	0
0018	REF	2 LAST 461		22,6365	00027 1			ZPRIME
0019				22,6366	00002 0			1
0020	REF	1		22,6367	32023 1		STORE	SINTH
								ARCTRIG FOR COMPUTATION OF THETA-Y
0021				22,6370	56776 1		TSRT	0
0022	REF	3 LAST 461		22,6371	00033 1			ZPRIME +4D
0023				22,6372	00002 0			1
0024	REF	1		22,6373	32021 0		STORE	COSTH
0025				22,6374	76776 0		ITC	0
0026	REF	1		22,6375	04437 0			ARCTRIG
0027				22,6376	47576 0		NOLOD	0
0028	REF	9 LAST 428		22,6377	33523 0		STORE	IGC
0029				22,6400	56776 1		TSRT	0
0030	REF	3 LAST 461		22,6401	01501 1			XDSMPR +2
0031				22,6402	00002 0			1
0032	REF	2 LAST 461		22,6403	32023 1		STORE	SINTH
0033				22,6404	64776 0		DMP	0
0034	REF	4 LAST 461		22,6405	00027 1			ZPRIME
0035	REF	4 LAST 461		22,6406	01503 0			XDSMPR +4
0036				22,6407	64775 0		DMP	1
0037				22,6410	66776 1		DSU	
0038	REF	5 LAST 461		22,6411	00033 1			ZPRIME +4

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 2

0039	REF	5	LAST	461	22,6412	01477	1		
0040	REF	2	LAST	461	22,6413	32021	0	STORE	XDSMPR COSTH
0041					22,6414	76776	0	ITC	0
0042	REF	2	LAST	461	22,6415	04437	0		ARCTRIG
0043					22,6416	47576	0	NOLOD	0
0044	REF	10	LAST	428	22,6417	33525	0	STORE	MGC
0045					22,6420	42776	1	DOT	0
0046	REF	6	LAST	461	22,6421	00027	1		ZPRIME
0047	REF	1			22,6422	01513	1		ZDSMPR
0048	REF	3	LAST	462	22,6423	32021	0	STORE	COSTH
0049					22,6424	42776	1	DOT	0
0050	REF	7	LAST	462	22,6425	00027	1		ZPRIME
0051	REF	1			22,6426	01505	0		YDSMPR
0052	REF	3	LAST	461	22,6427	32023	1	STORE	SINTH
0053					22,6430	76776	0	ITC	0
0054	REF	3	LAST	462	22,6431	04437	0		ARCTRIG
0055					22,6432	47576	0	NOLOD	0
0056	REF	24	LAST	443	22,6433	33521	1	STORE	OGC
0057					22,6434	44576	0	ITCI	0
0058	REF	8	LAST	461	22,6435	00052	0		S2

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 3

0059			22,6436	65175 1	ARCTRIG	ABS	1	GIVEN SINTH AND COSTH SCALED X1/4 FIND
0060			22,6437	66756 0		DSJ	BMN	THETA IN THE RANGE -PI TO +PI SCALED-
0061	REF	4 LAST 462	22,6440	00023 0			SINTH	TEMPORARY FOR SINTH XPI/2
0062	REF	1	22,6441	05170 1			QTSN45	CONSTANT=0.1768
0063	REF	1	22,6442	04453 1			TRIG1	
0064			22,6443	63775 1		TSLT	1	
0065			22,6444	61056 0		ACOS	SIGN	
0066	REF	4 LAST 462	22,6445	00021 1			COSTH	TEMPORARY FOR COSTH
0067			22,6446	00002 0			1	
0068	REF	5 LAST 463	22,6447	00023 0			SINTH	TEMPORARY FOR SINTH
0069	REF	1	22,6450	32025 1		STORE	THETA	
0070			22,6451	40576 1		ITCQ	0	RETURN TO MAIN PROGRAM
0071			22,6452	63775 1	TRIG1	TSLT	1	SINTH LESS THAN QTSN45
0072			22,6453	63176 1		ASIN		
0073	REF	6 LAST 463	22,6454	00023 0			SINTH	TEMPORARY FOR SINTH
0074			22,6455	00002 0			1	
0075	REF	2 LAST 463	22,6456	32025 1		STORE	THETA	
0076			22,6457	73776 0		BMN	0	
0077	REF	5 LAST 463	22,6460	00021 1			COSTH	
0078	REF	1	22,6461	04466 1			TRIG2	
0079			22,6462	45175 0		DMOVE	1	
0080			22,6463	40576 1		ITCQ		
0081	REF	3 LAST 463	22,6464	00025 0			THETA	
0082			22,6465	53775 1	TRIG2	SIGN	1	COSTH NEGATIVE
0083			22,6466	66776 1		DSJ		
0084	REF	7 LAST 371	22,6467	05200 0			HALFDP	
0085	REF	7 LAST 463	22,6470	00023 0			SINTH	WITH ASIN
0086	REF	4 LAST 463	22,6471	00025 0			THETA	
0087	REF	5 LAST 463	22,6472	32025 1		STORE	THETA	
0088			22,6473	40576 1		ITCQ	0	RETURN

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 4

R0089 THIS PROGRAM COMPUTES SXT ANGLES SAC AND
 R0090 PAC IN HALF AND EIGHT REVOLUTIONS RESPEC
 R0091 GO IN WITH S1=BASE ADDRESS OF CDU:S

0092			22,6474	45575 1	SMNB	ITA	1	CHECK THAT NBSMBIT IS OFF, IF IT IS GO TO
0093			22,6475	43411 1		TEST	SWITCH	NBSM1, OTHERWISE SWITCH IT OFF
0094	REF	9 LAST 462	22,6476	00052 0			S2	
0095	REF	5 LAST 372	22,6477	00006 1			NBSMBIT	
0096	REF	1	22,6500	04503 0			SMNB1	
0097	REF	6 LAST 464	22,6501	00006 1			NBSMBIT	
0098			22,6502	75575 1	SMNB1	AXT,1	1	NBSMBIT IS OFF
0099			22,6503	74572 1		AXT,2	ITC	SET INDECES TO ROTATE X,Z ABOUT Y
0100			22,6504	00005 1			4	
0101			22,6505	00001 0			0	
0102	REF	1	22,6506	04556 0			AXISROT	DO AXIS ROTATION
0103			22,6507	75575 1		AXT,1	1	SET INDECES TO ROTATE Y,X ABOUT Z
0104			22,6510	74572 1		AXT,2	ITC	
0105			22,6511	00003 1			2	
0106			22,6512	00005 1			4	
0107	REF	2 LAST 464	22,6513	04556 0			AXISROT	DO AXIS ROTATION
0108			22,6514	75575 1		AXT,1	1	SET INDECES TO ROTATE Z,Y ABOUT X
0109			22,6515	74572 1		AXT,2	ITC	
0110			22,6516	00001 0			0	
0111			22,6517	00003 1			2	
0112	REF	3 LAST 464	22,6520	04556 0			AXISROT	DO AXIS ROTATION
0113			22,6521	44576 0		ITCI	0	RETURN
0114	REF	10 LAST 464	22,6522	00052 0			S2	

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 5

0115			22,6523	45575 1	NBSM	ITA	1	CHECK THAT NBSMBIT IS ON, IF IT IS NOT GO TO NBSM1 AND SWITCH IT ON
0116			22,6524	43576 1		TEST		
0117	REF	11 LAST 464	22,6525	00052 0			S2	
0118	REF	7 LAST 464	22,6526	00006 1			NBSMBIT	
0119	REF	1	22,6527	04552 1			NBSM1	
0120			22,6530	75575 1	NBSM2	AXT,1	1	ROTATE Z,Y ABOUT X
0121			22,6531	74572 1		AXT,2	ITC	
0122			22,6532	00001 0			0	
0123			22,6533	00003 1			2	
0124	REF	4 LAST 464	22,6534	04556 0			AXISROT	
0125			22,6535	75575 1		AXT,1	1	ROTATE Y,X ABOUT Z
0126			22,6536	74572 1		AXT,2	ITC	
0127			22,6537	00003 1			2	
0128			22,6540	00005 1			4	
0129	REF	5 LAST 465	22,6541	04556 0			AXISROT	
0130			22,6542	75575 1		AXT,1	1	ROTATE X,Z ABOUT Y
0131			22,6543	74572 1		AXT,2	ITC	
0132			22,6544	00005 1			4	
0133			22,6545	00001 0			0	
0134	REF	6 LAST 465	22,6546	04556 0			AXISROT	
0135			22,6547	44576 0		ITCI	0	RETURN
0136	REF	12 LAST 465	22,6550	00052 0			S2	
0137			22,6551	42575 0	NBSM1	SWITCH	1	
0138			22,6552	76776 0		ITC		
0139	REF	8 LAST 465	22,6553	00006 1			NBSMBIT	
0140	REF	1	22,6554	04531 1			NBSM2	

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 6

0141		22,6555	57574 0	AXISROT	XSU,1 2	ROUTINE FOR SINGLE AXIS ROTATIONS
0142		22,6556	42171 0		SMOVE* RTB	
0143		22,6557	61576 1		XAD,1	REMARKS ARE FOR ROTATING Z,Y ABOUT X
0144	REF 13 LAST 442	22,6560	00051 0		S1	
0145		22,6561	00011 1		4,1	INDEX1=0,INDEX2=2
0146	REF 3 LAST 434	22,6562	20304 1		CDULOGIC	ANGLES ARE STORED IN THE ORDER IGA,MGA,
0147	REF 14 LAST 466	22,6563	00051 0		S1	
0148		22,6564	32037 1		STORE 30D	OGA,SO WE PICK UP OGA
0149		22,6565	55176 1	ACCURROT	COS 0	
0150		22,6566	00037 0		30D	
0151		22,6567	34021 0		STORE 8D,1	STORE COS(OGA) IN 8
0152		22,6570	57176 0		SIN 0	
0153		22,6571	00037 0		30D	
0154		22,6572	34025 1		STORE 10D,1	STORE SIN(OGA) IN 10D
0155		22,6573	64375 1		DMP* 1	
0156		22,6574	63776 1		TSLT	
0157		22,6575	00025 0		10D,1	
0158	REF 15 LAST 443	22,6576	00112 0		VAC +4,2	PUSH DOWN (VAC +2) SIN(OGA)
0159		22,6577	00002 0		1	
0160		22,6600	64375 1		DMP* 1	
0161		22,6601	63776 1		TSLT	
0162		22,6602	00021 1		8D,1	
0163	REF 16 LAST 466	22,6603	00112 0		VAC +4,2	PUSH DOWN (VAC +2) COS(OGA)
0164		22,6604	00002 0		1	
0165		22,6605	64374 0		DMP* 2	
0166		22,6606	63615 0		TSLT TEST	
0167		22,6607	65776 1		BDSU	
0168		22,6610	00025 0		10D,1	
0169	REF 17 LAST 466	22,6611	00111 0		VAC +4,1	
0170		22,6612	00002 0		1	
0171	REF 9 LAST 465	22,6613	00006 1		NBSMBIT	
0172	REF 1	22,6614	04630 0		AXISROT1	
0173	REF 18 LAST 466	22,6615	34112 1		STORE VAC +4,2	$VAC+2 = (VAC+2) \cos(OGA) - (VAC+4) \sin(OGA)$
0174		22,6616	64375 1		DMP* 1	
0175		22,6617	63742 0		TSLT DAD	
0176		22,6620	00021 1		8D,1	
0177	REF 19 LAST 466	22,6621	00111 0		VAC +4,1	
0178		22,6622	00002 0		1	
0179	REF 20 LAST 466	22,6623	34111 1		STORE VAC +4,1	$VAC+4 = (VAC+2) \sin(OGA) + (VAC+4) \cos(OGA)$
0180		22,6624	75175 0		VMOVE 1	
0181		22,6625	40576 1		ITCQ	
0182	REF 21 LAST 466	22,6626	00041 1		VAC	

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 7

0183			22,6627	47575 0	AXISROT1	NOLOD	1	TEST WAS 0 FOR SMNB
0184			22,6630	70776 0		DAD		
0185	REF	22 LAST 466	22,6631	34112 1		STORE	VAC +4,2	$VAC+2 = (VAC+2) \cos(OGA) + (VAC+4) \sin(OGA)$
0186			22,6632	64375 1		DMP*	1	
0187			22,6633	63732 1		TSLT	DSU	
0188			22,6634	00021 1			8D,1	
0189	REF	23 LAST 467	22,6635	00111 0			VAC +4,1	
0190			22,6636	00002 0			1	
0191	REF	24 LAST 467	22,6637	34111 1		STORE	VAC +4,1	$VAC+4 = -(VAC+2) \sin(OGA) + (VAC+4) \cos(OGA)$
0192			22,6640	75175 0		VMOVE	1	
0193			22,6641	40576 1		ITCQ		
0194	REF	25 LAST 467	22,6642	00041 1			VAC	

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 8

Line	REF	LAST	Value	Address	Operation	Unit	Description
0195			22,6643	41775	1	CALCGA	VXV
0196			22,6644	73176	0		UNIT
0197	REF	3	LAST	333			XNB
0198	REF	20	LAST	446			YSM
0199			22,6647	47575	0		NOLOD
0200			22,6650	42625	0		DOT
0201	REF	2	LAST	31			ITA
0202	REF	13	LAST	465			ZNB
0203	REF	6	LAST	463			S2
			22,6653	32021	0		STORE
							COSTH
							TEMPORARY FOR COSTH
0204			22,6654	47575	0		NOLOD
0205			22,6655	42776	1		DOT
0206	REF	2	LAST	31			YNB
0207	REF	8	LAST	463			STORE
			22,6657	32023	1		SINTH
0208			22,6660	76776	0		ITC
0209	REF	4	LAST	462			ARCTRIG
0210			22,6662	47576	0		NOLOD
0211	REF	25	LAST	462			STORE
			22,6663	33521	1		OGC
0212			22,6664	42774	0		DOT
0213			22,6665	63746	1		ISLT
0214			22,6666	56713	1		TSRT
0215	REF	21	LAST	468			YSM
0216	REF	4	LAST	468			XNB
0217			22,6671	00003	1		2
0218	REF	1		22,6672	04725	0	GIMLOCK1
0219			22,6673	00002	0		1
0220	REF	11	LAST	462			STORE
			22,6674	33525	0		MGC
0221			22,6675	65175	1		ABS
0222			22,6676	66616	0		DSJ
0223	REF	12	LAST	468			BPL
0224	REF	1		22,6700	05202	1	MGC
0225	REF	2	LAST	468			GIMLOCK1
			22,6701	04725	0		
0226			22,6702	42776	1	CALCGA1	DOT
0227	REF	17	LAST	446			ZSM
0228			22,6704	00001	0		0
0229	REF	7	LAST	468			STORE
			22,6705	32021	0		COSTH
0230			22,6706	42776	1		DOT
0231	REF	35	LAST	446			XSM
0232	REF	9	LAST	468			STORE
			22,6710	32023	1		SINTH
0233			22,6711	76776	0		ITC
0234	REF	5	LAST	468			ARCTRIG
			22,6712	04437	0		

Handwritten notes and markings:

- 0197-0198: XNB, YSM
- 0201-0203: ITA, ZNB, S2, STORE, COSTH
- 0204-0207: YNB, SINTH
- 0208-0209: ITC, ARCTRIG
- 0210-0211: NOLOD, STORE, OGC
- 0212-0214: DOT, ISLT, TSRT
- 0215-0217: YSM, XNB, 2
- 0218-0219: GIMLOCK1, 1
- 0220: STORE, MGC
- 0221-0222: ABS, DSJ
- 0223-0225: BPL, MGC, GIMLOCK1
- 0226-0229: CALCGA1, DOT, ZSM, 0, STORE, COSTH
- 0230-0232: DOT, XSM, STORE, SINTH
- 0233-0234: ITC, ARCTRIG

Additional handwritten notes:

- 0197-0198: XNB, YSM
- 0201-0203: ITA, ZNB, S2, STORE, COSTH
- 0204-0207: YNB, SINTH
- 0208-0209: ITC, ARCTRIG
- 0210-0211: NOLOD, STORE, OGC
- 0212-0214: DOT, ISLT, TSRT
- 0215-0217: YSM, XNB, 2
- 0218-0219: GIMLOCK1, 1
- 0220: STORE, MGC
- 0221-0222: ABS, DSJ
- 0223-0225: BPL, MGC, GIMLOCK1
- 0226-0229: CALCGA1, DOT, ZSM, 0, STORE, COSTH
- 0230-0232: DOT, XSM, STORE, SINTH
- 0233-0234: ITC, ARCTRIG

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 9

0235			22,6713	47576 0	NOLOD 0	
0236	REF 10 LAST 461		22,6714	33523 0	STORE IGC	
0237			22,6715	75175 0	VMOVE 1	OP COUNT BY UNEEDA DEBUGGING SERVICE INC
0238			22,6716	76576 1	RTB	
0239	REF 26 LAST 468		22,6717	01521 0	OGC	
0240	REF 2 LAST 387		22,6720	20624 0	V1STO2S	
0241	REF 18 LAST 390		22,6721	32701 0	STORE THETAD	*** BEWARE *** MODE IS NOW DP ***
0242			22,6722	44576 0	ITCI 0	
0243	REF 14 LAST 468		22,6723	00052 0	S2	
0244			22,6724	77576 0	GIMLOCK1 EXIT 0	
0245	REF 16 LAST 286	22,6725	0 3007 0	TC	ALARM	
0246		22,6726	00401 1	OCI	00401	
0247	REF 51 LAST 456	22,6727	0 4000 0	TC	INTPRET	RESUME ROUTINE.
0248		22,6730	76776 0	ITC 0		
0249	REF 1	22,6731	04703 1	CALCGA1		

$$\sin(\theta) = .32$$

$$\sin(\theta) = .16$$

$$\frac{1}{2} \times \frac{2}{2}$$

$$\frac{9}{2}$$

$$7 \times 10^2$$

$$\frac{1}{10}$$

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 10

0250			22,6732	42175 1	SXTNB	SMOVE* 1	THIS PROGRAM COMPUTES COMPONENTS OF THE STAR HALF UNIT VECTOR, STARM, GIVEN THE MEASURED SXT ANGLES PAM AND SAM.
0251			22,6733	76571 0		RTB RTB	
0252			22,6734	00013 0		5,1	
0253	REF	4 LAST 466	22,6735	20304 1		CDULOGIC	
0254	REF	1	22,6736	20407 0		TRUNLOG	
0255			22,6737	47575 0		NOLOD 1	
0256			22,6740	57116 0		SIN TSLT	
0257			22,6741	00002 0		1	STORE A=SIN(PAM.PI/4)
0258			22,6742	42175 1		SMOVE* 1	
0259			22,6743	76576 1		RTB	
0260			22,6744	00007 0		3,1	
0261	REF	5 LAST 470	22,6745	20304 1		CDULOGIC	STORE SAM/2 IN PD 4, RESOLVES +/- ZERO
0262			22,6746	47575 0		NOLOD 1	
0263			22,6747	55122 0		COS DMP	
0264			22,6750	00003 1		2	
0265	REF	7 LAST 432	22,6751	32041 0		STORE STARM	STARM +0=(A.COS(PI.SAM))/2
0266			22,6752	57175 0		SIN 1	SIN(2PI.PD4).PD2
0267			22,6753	64776 0		DMP	
0268	REF	8 LAST 470	22,6754	32043 1		STORE STARM +2	STARM +2=(A.SIN(PI.SAM))/2
0269			22,6755	55176 1		COS 0	
0270	REF	9 LAST 470	22,6756	32045 1		STORE STARM +4	STARM +4=0.5.COS(PAM.PI/4)
0271			22,6757	40576 1		ITCQ 0	

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 11

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R0272  AXISGEN      GIVEN TWO STAR VECTORS      -      -
R0273  -----      STARA AND STARB WRITTEN IN TWO
R0274      COORDINATE SYSTEMS, THE D AND C SYSTEMS SO THAT WE
R0275      HAVE      -      -      -      -
R0276      STARA      STARB      AND STARB , STARA
R0277      D      D      C      C
R0278      THIS PROGRAM COMPUTES THE HALF UNIT AXES
R0279      -      -      -
R0280      XD      YD      ZD
R0281      C      C      C
R0282      THAT IS THE D COORDINATE SYSTEM AXES REFERRED TO THE C
R0283      COORDINATE SYSTEM
R0284      THE INPUTS ARE STORED AS FOLLOWS
R0285
R0286      C(STARAD) - C(STARAD +5) = STARA
R0287      D
R0288
R0289      C(STARAD+6)-C(STARAD+11D)= STARB
R0290      D
R0291
R0292      C(6D) - C(11D)      = STARA
R0293      C
R0294
R0295      C(12D) - C(17D)      = STARB
R0296      C
R0297      RESULTS ARE LEFT IN XDC TO XDC +17D
R0298      THE RETJTIME DESTROYS THE INPUTS AND USES LOCATIONS
R0299      STARAD+12D TO STARAD+17D AND 18D - 23D +30D
0300      22,6760      75575 1  AXISGEN  AXT,1  1
0301      22,6761      55576 0          AST,1
0302      REF  22 LAST 447      22,6762      01411 1          STARAD +6
0303      REF  23 LAST 471      22,6763      01375 1          STARAD -6
0304      22,6764      41375 0  AXISGEN1  VXV*  1
0305      22,6765      73176 0          UNIT
0306      REF  24 LAST 471      22,6766      03035 1          STARAD +12D,1
0307      REF  25 LAST 471      22,6767      03051 0          STARAD +18D,1
0308      REF  26 LAST 471      22,6770      37051 1          STORE  STARAD +18D,1

0309      22,6771      41375 0          VXV*  1
0310      22,6772      44776 1          VSLT
0311      REF  27 LAST 471      22,6773      03035 1          STARAD +12D,1
0312      REF  28 LAST 471      22,6774      03051 0          STARAD +18D,1
0313      22,6775      00002 0          1
0314      REF  29 LAST 471      22,6776      37065 0          STORE  STARAD +24D,1

0315      22,6777      51576 1          TIX,1  0
0316      REF  1          22,7000      04765 1          AXISGEN1

0317      22,7001      53573 0          AXC,1  3
0318      22,7002      67565 0          SXA,1  AXT,1

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L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 12

0319		22,7003	55561 0	AST,1	AXT,2
0320		22,7004	54576 1	AST,2	
0321		22,7005	00007 0		6
0322		22,7006	00037 0		30D
0323		22,7007	00023 0		18D
0324		22,7010	00007 0		6
0325		22,7011	00007 0		6
0326		22,7012	00003 1		2
0327		22,7013	65576 0	AXISGEN2	XCHX,1 0
0328		22,7014	00037 0		30D
0329		22,7015	75376 1	VXSC*	0
0330		22,7016	00001 0		0,1
0331	REF 30 LAST 471	22,7017	03022 1		STARAD +6,2
0332		22,7020	75376 1	VXSC*	0
0333		22,7021	00015 0		6,1
0334	REF 31 LAST 472	22,7022	03036 1		STARAD +12D,2
0335		22,7023	32031 1	STORE	24D
0336		22,7024	75374 0	VXSC*	2
0337		22,7025	50642 1	VAD	VAD
0338		22,7026	44725 1	VSLT	XCHX,1
0339		22,7027	00031 0		12D,1
0340	REF 32 LAST 472	22,7030	03052 0		STARAD +18D,2
0341		22,7031	77777 0		-
0342		22,7032	00031 0		24D
0343		22,7033	00002 0		1
0344		22,7034	00037 0		30D
0345	REF 7 LAST 446	22,7035	37241 1	STORE	XDC +18D,1
0346		22,7036	51576 1	TIX,1	0
0347	REF 1	22,7037	05041 1		AXISGEN3
0348		22,7040	50576 0	AXISGEN3	TIX,2 0
0349	REF 1	22,7041	05014 1		AXISGEN2
0350		22,7042	40576 1	ITCQ	0

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 13

0351			22,7043	75175 0	CALCSXA	VMOVE	1	THIS PROGRAM COMPUTES THE SXT ANGLES SAC AND PAC GIVEN THE STAR VECTOR IN SM AXES HALF UNIT VECTOR
0352			22,7044	45572 0		ITA	ITC	
0353	REF	1	22,7045	01417 1			STAR	
0354	REF	15 LAST 469	22,7046	00052 0			S2	
0355	REF	1	22,7047	04475 0			SMNB	
0356			22,7050	47576 0		NOLOD	0	STORE (STARM0,STARM1,STARM2)
0357			22,7051	32007 1		STORE	6	
0358			22,7052	45176 0		DMOVE	0	SET VAC TO (STARM0,STARM1,0)
0359	REF	8 LAST 461	22,7053	05174 0			ZERODP	
0360	REF	26 LAST 467	22,7054	32045 1		STORE	VAC +4	
0361			22,7055	47575 0		NOLOD	1	UNIT VAC TO (S0,S1,0)
0362			22,7056	73072 0		UNIT	TSRT	
0363			22,7057	00003 1			2	STORE COS/4 =S0/4 , SIN/4 = S1/4 ,0
0364			22,7060	32001 1		STORE	0	
0365			22,7061	45176 0		DMOVE	0	
0366			22,7062	00001 0			0	
0367	REF	8 LAST 468	22,7063	00021 1			COSTH	
0368			22,7064	45176 0		DMOVE	0	
0369			22,7065	00003 1			2	
0370	REF	10 LAST 468	22,7066	00023 0			SINTH	
0371			22,7067	76776 0		ITC	0	USES THE COS/SIN STORED ABOVE
0372	REF	6 LAST 468	22,7070	04437 0			ARCTRIG	
0373			22,7071	76576 1		RTB	0	
0374	REF	4 LAST 434	22,7072	20325 1			1ST02S	
0375	REF	1	22,7073	33521 1		STORE	SAC	
0376			22,7074	42773 1		DOT	3	1/4 UNIT (STARM0,STARM1,0) STARM-1/2 UNIT VECTOR
0377			22,7075	63713 1		TSLT	ASIN	
0378			22,7076	63746 1		TSLT	BOV	
0379			22,7077	73771 1		BMN	RTB	
0380			22,7100	00001 0			0	
0381			22,7101	00007 0			6	
0382			22,7102	00004 0			3	
0383			22,7103	00004 0			3	
0384	REF	1	22,7104	05113 1			CALCSXA1	
0385	REF	2 LAST 473	22,7105	05113 1			CALCSXA1	
0386	REF	5 LAST 473	22,7106	20325 1			1ST02S	
0387	REF	1	22,7107	33523 0		STORE	PAC	
0388			22,7110	44576 0		ITCI	0	
0389	REF	16 LAST 473	22,7111	00052 0			S2	
0390			22,7112	77576 0	CALCSXA1	EXIT	0	PROGRAM ERROR,STAR OUT OF FIELD OF VIEW

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 14

0391	REF	17 LAST 469	22,7113	0 3007 0	TC	ALARM
0392			22,7114	00402 1	OCT	00402
0393	REF	51 LAST 418	22,7115	0 2124 1	TC	ENDOFJOB

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 15

0394			22,7116	41775 1	SXTANG	VXV	1	TIVELY FROM INPUTS STAR AND XNB, YNB, ZNB
0395			22,7117	73026 1		UNIT	VSRT	THE HALF UNIT STAR VECTOR AND THE NAV
0396	REF	3 LAST 468	22,7120	01513 1			ZNB	BASE HALF AXES.
0397	REF	2 LAST 473	22,7121	01417 1			STAR	
0398			22,7122	00002 0			1	
0399	REF	1	22,7123	32027 0		STORE	PDA	DEFINES PROJECTION OF STAR IN XY PLANE
0400			22,7124	42775 1		DOT	1	
0401			22,7125	47025 0		COMP	ITA	COMPUTE SIN(PI.SAC)/4
0402	REF	2 LAST 475	22,7126	00027 1			PDA	
0403	REF	5 LAST 468	22,7127	01477 1			XNB	
0404	REF	17 LAST 473	22,7130	00052 0			S2	
0405	REF	11 LAST 473	22,7131	32023 1		STORE	SINTH	
0406			22,7132	42776 1		DOT	0	COMPUTE COS(PI.SAC)/4
0407	REF	3 LAST 475	22,7133	00027 1			PDA	
0408	REF	3 LAST 468	22,7134	01505 0			YNB	
0409	REF	9 LAST 473	22,7135	32021 0		STORE	COSTH	
0410			22,7136	76776 0		ITC	0	COMPUTE SAC
0411	REF	7 LAST 473	22,7137	04437 0			ARCTRIG	
0412			22,7140	76576 1		RTB	0	
0413	REF	6 LAST 473	22,7141	20325 1			1ST02S	
0414	REF	2 LAST 473	22,7142	33521 1		STORE	SAC	
0415			22,7143	41772 0		VXV	4	
0416			22,7144	42716 1		DOT	TSLT	
0417			22,7145	63116 1		ASIN	TSLT	COMPUTE PAC
0418			22,7146	71756 0		BOV	BMN	
0419			22,7147	76576 1		RTB		
0420	REF	4 LAST 475	22,7150	00027 1			PDA	
0421	REF	4 LAST 475	22,7151	01513 1			ZNB	
0422	REF	3 LAST 475	22,7152	01417 1			STAR	
0423			22,7153	00003 1			2	
0424			22,7154	00004 0			3	
0425	REF	1	22,7155	05164 1			SXTALARM	
0426	REF	2 LAST 475	22,7156	05164 1			SXTALARM	WE NOW HAVE PRECISION ANGLE
0427	REF	7 LAST 475	22,7157	20325 1			1ST02S	
0428	REF	2 LAST 473	22,7160	33523 0		STORE	PAC	
0429			22,7161	44576 0		ITCI	0	JOB IS DONE
0430	REF	18 LAST 475	22,7162	00052 0			S2	
0431			22,7163	77576 0	SXTALARM	EXIT	0	BRANCH TO RESTART SEQUENCE
0432	REF	18 LAST 474	22,7164	0 3007 0		TC	ALARM	
0433			22,7165	00403 0		OCT	00403	
0434	REF	52 LAST 474	22,7166	0 2124 1		TC	ENDOFJOB	

L INFLIGHT ALIGNMENT SUBROUTINES

USER'S OWN PAGE NO. 16

0435		22,7167	05520 0	QTSN45	2DEC	.1768
C0435		22,7170	26075 1			
0436		22,7171	05260 0	THIRD	2DEC	.167
C0436		22,7172	04061 1			
0437			0026	ZPRIME	=	22D
0438			0026	PDA	=	22D
0439			0020	COSTH	=	16D
0440			0022	SINTH	=	18D
0441			0024	THETA	=	20D
0442	REF 27 LAST 473		0040	STARM	=	VAC
0443		22,7173	00000 1	ZERODP	2DEC	0
C0443		22,7174	00000 1			
0444		22,7175	37777 1	POSMAXDP	OCT	37777
0445		22,7176	37777 1		OCT	37777
0446		22,7177	20000 0	HALFDP	2DEC	.5
C0446		22,7200	00000 1			
0447		22,7201	12525 0	.333...	2DEC	.3333333333
C0447		22,7202	12525 0			

L KEYRUPT, UPRUPT, FRESH START

USER'S OWN PAGE NO. 1

0001				04,7363					
0002	REF	4	LAST	288	04,7363	7	3220	0	KEYRUPT1
0003	REF	7	LAST	175	04,7364	5	0642	1	MASK
0004	REF	1			04,7365	0	2736	1	TS
0005	REF	2	LAST	255	04,7366	3	2166	1	TC
0006	REF	14	LAST	353	04,7367	0	2052	1	LODSAMPT
0007	REF	1			04,7370	14006	1		CAF
0014	REF	8	LAST	477	04,7371	3	0642	1	PR1033
0015	REF	22	LAST	207	04,7372	2	0601	1	NOVAC
0016	REF	355	LAST	434	04,7373	5	0115	1	CADR
0017	REF	7	LAST	208	04,7374	0	2264	0	CHARIN
									RUPTREG4
									INDEX
									LOCCTR
									TS
									MPAC
									RESUME

TIME IS SNATCHED IN RUPT FOR NOUN 65

LEAVE 5 BIT KEY CDE IN MPAC FOR CHARIN

-6

L KEYRUPT, UPRUPT, FRESH START

USER'S OWN PAGE NO. 2

0018	REF	6	LAST	206	04,7375	5	0030	1	UPRUPTB	TS	BANKRUPT	
0019	REF	7	LAST	409	04,7376	0	2677	0		TC	READTIME +1	TIME IS SNATCHED IN RUPT FOR NOUN 65
0020	REF	164	LAST	456	04,7377	3	5501	0		CAF	ZERO	
0021	REF	2	LAST	148	04,7400	3	0041	1		XCH	UPLINK	ZERO UPLINK
0022	REF	1			04,7401	5	0600	1		TS	KEYTEMP1	
0023	REF	82	LAST	288	04,7402	1	0717	1		CCS	DSPTAB +7	TURN ON UPACT LIGHT
0024					04,7403	0	7405	1		TC	+2	UPACT = BIT 11 OF DSPTAB +7
0025	REF	1			04,7404	3	7510	1		CAF	B12-1	SAFETY PLAY
0026	REF	144	LAST	444	04,7405	6	4516	1		AD	ONE	
0027	REF	1			04,7406	5	0571	1		TS	KEYTEMP2	MAG OF DSPTAB +7 INTO KEYTEMP2
0028	REF	17	LAST	417	04,7407	7	4504	0		MASK	BIT11	
0029	REF	355	LAST	438	04,7410	1	0000	0		CCS	A	
0030	REF	1			04,7411	0	7421	1		TC	UPRPT1	BIT 11 ALREADY ONE
0031	REF	2	LAST	478	04,7412	3	0571	1		XCH	KEYTEMP2	BIT 11 = 0
0032	REF	18	LAST	478	04,7413	6	4504	1		AD	BIT11	
0033	REF	356	LAST	478	04,7414	4	0000	0		CS	A	STORE NEGATIVELY
0034	REF	83	LAST	478	04,7415	3	0717	0		XCH	DSPTAB +7	
0035	REF	357	LAST	478	04,7416	1	0000	0		CCS	A	
0036	REF	1			04,7417	0	7511	0		TC	INCNOUTU	PREVIOUS CONTENTS WAS +
0037					04,7420	3	0000	1		NOOP		SAFETY PLAY
0038	REF	5	LAST	477	04,7421	3	3220	1	UPRPT1	CAF	LOW5	TEST FOR TRIPLE CHAR REDUNDANCY
0039	REF	2	LAST	478	04,7422	7	0600	0		MASK	KEYTEMP1	LOW5 OF WORD
0040	REF	3	LAST	478	04,7423	3	0600	1		XCH	KEYTEMP1	LOW5 INTO KEYTEMP1
0041	REF	12	LAST	274	04,7424	3	0021	1		XCH	SR	WHOLE WORD INTO SR
0042	REF	3	LAST	478	04,7425	5	0571	1		TS	KEYTEMP2	ORIGINAL SR INTO KEYTEMP2
0043	REF	1			04,7426	0	7472	1		TC	SRGHT5	
0044	REF	6	LAST	478	04,7427	7	3220	0		MASK	LOW5	MID 5
0045	REF	1			04,7430	6	7507	1		AD	HI10	
0046	REF	1			04,7431	0	7501	1		TC	UPTTEST	
0047	REF	2	LAST	478	04,7432	0	7472	1		TC	SRGHT5	
0048	REF	7	LAST	478	04,7433	7	3220	0		MASK	LOW5	HIGH 5
0049					04,7434	4	0000	0		COM		
0050	REF	2	LAST	478	04,7435	0	7501	1		TC	UPTTEST	
0051	REF	1			04,7436	0	7466	1	UPOK	TC	RESTORSR	CODE IS GOOD
0052	REF	1			04,7437	4	7443	1		CS	ELRCODE	IF CODE = ERROR LIGHT RESET, PUT +0
0053	REF	4	LAST	478	04,7440	6	0600	1		AD	KEYTEMP1	INTO UPLOCK(BIT2 OF STATE)
0054	REF	358	LAST	478	04,7441	1	0000	0		CCS	A	IF CODE NOT= ELR, PASS CODE ONLY IF
0055	REF	1			04,7442	0	7451	0		TC	TSTUPLOK	UPLOCK=0 (BIT2 OF STATE)
0056					04,7443	00022	1		ELRCODE	OCT	22	
0057	REF	2	LAST	478	04,7444	0	7451	0		TC	TSTUPLOK	
0058	REF	11	LAST	337	04,7445	4	4515	0		CS	BIT2	0 INTO UPLOCK(BIT2 OF STATE)
0059	REF	1			04,7446	7	0645	1		MASK	UPLOCK	
0060	REF	2	LAST	478	04,7447	5	0645	0		TS	UPLOCK	
0061	REF	1			04,7450	0	7455	1		TC	ACCEPTUP	
0062	REF	12	LAST	478	04,7451	3	4515	1	TSTUPLOK	CAF	BIT2	
0063	REF	3	LAST	478	04,7452	7	0645	1		MASK	UPLOCK	
0064	REF	359	LAST	478	04,7453	1	0000	0		CCS	A	
0065	REF	8	LAST	477	04,7454	0	2264	0		TC	RESUME	UPLOCK = 1 (BIT2 OF STATE)
0066	REF	5	LAST	478	04,7455	3	0600	1	ACCEPTUP	XCH	KEYTEMP1	UPLOCK = 0 (BIT2 OF STATE)
0067	REF	2	LAST	99	04,7456	0	7364	1		TC	KEYRUPT1 +1	

L KEYRUPT, UPRUPT, FRESH START

USER'S OWN PAGE NO. 3

0068	REF	2	LAST	478	04,7457	0	7466	1	TMFAIL2	TC	RESTORSR		CODE IS BAD
0069	REF	13	LAST	478	04,7460	4	4515	0		CS	BITS		LOCK OUT FURTHER UPLINK ACTIVITY (BY
0070	REF	4	LAST	478	04,7461	7	0645	1		MASK	UPLOCK		PUTTING 1 INTO UPLOCK,BIT2 OF STATE)
0071	REF	14	LAST	479	04,7462	6	4515	1		AD	BITS		UNTIL ERROR LIGHT RESET IS SENT UP
0072	REF	5	LAST	479	04,7463	5	0645	0		TS	UPLOCK		UPLINK.
0073	REF	1			04,7464	0	2571	0	TMFAIL1	TC	TMALM		
0074	REF	9	LAST	478	04,7465	0	2264	0		TC	RESUME		
0075	REF	4	LAST	478	04,7466	3	0571	1	RESTORSR	XCH	KEYTEMP2		
0076					04,7467	6	0000	1		DOUBLE			
0077	REF	13	LAST	478	04,7470	5	0021	1		TS	SR		
0078	REF	223	LAST	417	04,7471	0	0001	0		TC	Q		
0079	REF	4	LAST	176			2571		TMALM	EQUALS	TMFAIL		TM FAIL LIGHT ON (IN DOWNRUPT).
0080	REF	14	LAST	479	04,7472	4	0021	0	SRGHT5	CS	SR		
0081	REF	15	LAST	479	04,7473	4	0021	0		CS	SR		
0082	REF	16	LAST	479	04,7474	4	0021	0		CS	SR		
0083	REF	17	LAST	479	04,7475	4	0021	0		CS	SR		
0084	REF	18	LAST	479	04,7476	4	0021	0		CS	SR		
0085	REF	360	LAST	478	04,7477	4	0000	0		CS	A		
0086	REF	224	LAST	479	04,7500	0	0001	0		TC	Q		DELIVERS WORD UNCOMPLEMENTED
0087	REF	6	LAST	478	04,7501	6	0600	1	UPTTEST	AD	KEYTEMP1		
0088	REF	361	LAST	479	04,7502	1	0000	0		CCS	A		
0089	REF	1			04,7503	0	7457	0		TC	TMFAIL2		
0090	REF	23	LAST	254	04,7504	0	3062	0		TC	CCSHOLE		
0091	REF	2	LAST	479	04,7505	0	7457	0		TC	TMFAIL2		
0092	REF	225	LAST	479	04,7506	0	0001	0		TC	Q		
0093					04,7507	77740	1		H110	OCT	77740		
0094	REF	8	LAST	109		2075			UPBANK	EQUALS	EXECBANK		IN SAME BANK AS EXEC.
0095					04,7510-	03777	0		B12-1	OCT	3777		
0096	REF	8	LAST	288	04,7511	3	0707	1	INCNOUTU	XCH	NOUT		
0097	REF	145	LAST	478	04,7512	6	4516	1		AD	ONE		
0098	REF	9	LAST	479	04,7513	5	0707	1		TS	NOUT		
0099	REF	226	LAST	479	04,7514	2	0001	1		INDEX	Q		
0100													

L KEYRUPT, UPRUPT, FRESH START

USER'S OWN PAGE NO. 4

R0102 THE RECEPTION OF A BAD CODE BY UPLINK LOCKS OUT FURTHER UPLINK ACTIVITY
R0103 BY PLACING A 1 INTO UPLOCK (BIT2 OF STATE). BIT9 (AND BIT11. OF TMKEYBUF
R0104 IS SET TO 1 TO SEND AN INDICATION OF THIS SITUATION DOWN THE DOWNLINK.
R0105 THE UPLINK INTERLOCK IS ALLOWED WHEN AN ERROR LIGHT RESET CODE IS SENT
R0106 UP THE UPLINK, OR WHEN A FRESH START IS PERFORMED.

L PINBALL GAME BUTTONS AND LIGHTS

USER'S OWN PAGE NO. 1

R0001 KEYBOARD AND DISPLAY PROGRAM

R0002 THE FOLLOWING QUOTATION IS PROVIDED THROUGH THE COURTESY OF THE AUTHORS.

R0003 ::IT WILL BE PROVED TO THY FACE THAT THOU HAST MEN ABOUT THEE THAT
 R0004 USUALLY TALK OF A NOUN AND A VERB, AND SUCH ABOMINABLE WORDS AS NO
 R0005 CHRISTIAN EAR CAN ENDURE TO HEAR.::

R0006 HENRY 6, ACT 2, SCENE 4

R0007 SUMMARY OF ERASABLE ASSIGNMENTS FOR KEYBOARD AND DISPLAY PROGRAM
 R0008 WHICH ARE ALL DEFINED ELSEWHERE.

R0009 SETLOC 627

R0010 BUFFER STORAGE AREAS FOR ROUTINES USING DISPLAY OR LOAD ROUTINES.
 R0011 DSPTEM1 ERASE +2 BUFFER STORAGE AREA 1 (MOSTLY FOR TIME)
 R0012 DSPTEM2 ERASE +2 BUFFER STORAGE AREA 2 (MOSTLY FOR DEG)
 R0013 ERASABLE ASSIGNMENTS SPECIFIC TO PINBALL

R0014 ERASABLES RESERVED FOR EXECUTIVE ACTION

R0015	DSPCOUNT	ERASE		DISPLAY POSITION INDICATOR
R0016	DECBRNCH	ERASE		+DEC, - DEC, OCT INDICATOR
R0017	VERBREG	ERASE		VERB CODE
R0018	NOUNREG	ERASE		NOUN CODE
R0019	XREG	ERASE		R1 INPUT BUFFER
R0020	YREG	ERASE		R2 INPUT BUFFER
R0021	ZREG	ERASE		R3 INPUT BUFFER
R0022	XREGLP	ERASE		LO PART OF XREG (FOR DEC CONV ONLY)
R0023	YREGLP	ERASE		LO PART OF YREG (FOR DEC CONV ONLY)
R0024	ZREGLP	ERASE		LO PART OF ZREG (FOR DEC CONV ONLY)
R0025	MODREG	ERASE		MODE CODE
R0026	DSPLOCK	=	STATE (BIT4)	KEYBOARD/SUBROUTINE CALL INTERLOCK
R0027	REQRET	ERASE		RETURN REGISTER FOR LOAD
R0028	LOADSTAT	ERASE		STATUS INDICATOR FOR LOADTST
R0029	CLPASS	ERASE		PASS INDICATOR CLEAR
R0030	NOUT	ERASE		ACTIVITY COUNTER FOR DSPTAB
R0031	NOUNADD	ERASE		MACHINE ADDRESS FOR NOUN
R0032	MONSAVE	ERASE		N/V CODE FOR MONITOR. ALSO ACTIVITY
R0033	MONSAVE1	ERASE		NOUNADD STORAGE FOR MONITOR WITH MATBS
R0034	DSPTAB	ERASE	+13D	0-10, DISPLAY PANEL BUFFER, 11-13, C RELAYS

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R0035	CADRSTOR	ERASE		ENDIDLE STORAGE
R0036	GRABLOCK	ERASE		INTERNAL INTERLOCK FOR DISPLAY SYSTEM
R0037	NVSB CADR	ERASE		NV SUB STORAGE FOR CALLING CADR
R0038	DSPLIST	ERASE	+2	WAITING LIST FOR DSP SYST INTERNAL USE
R0039	END OF ERASABLES RESERVED FOR EXECUTIVE ACTION			

R0040 ERASABLES RESERVED FOR INTERRUPT ACTION

R0041	INOWORD	ERASE		INPUT CODE STORAGE (KEYRUPT OR UPRUPT)
R0042	DSPCNT	ERASE		COUNTER FOR DSP OUT

R0043 TEMPORARY ERASABLES FOR EXECUTIVE ACTION

R0044	DSEXIT	=	COMPON	RETURN FOR DSP IN
R0045	EXITEM	=	COMPON	RETURN FOR SCALE FACTOR ROUTINE SELECT
R0046	BLANKRET	=	COMPON	RETURN FOR 2BLANK

R0047	WRDRET	=	TEM9	RETURN FOR 5BLANK
R0048	WDRET	=	TEM9	RETURN FOR DSP WD
R0049	DECRET	=	TEM9	RETURN FOR PUTCOM (DEC LOAD)
R0050	21/22REG	=	TEM9	TEMP FOR CHAR IN

R0051	UPDATRET	=	ORDER	RETURN FOR UPDATNN, UPDATVB
R0052	CHAR	=	ORDER	TEMP FOR CHAR IN
R0053	ERCNT	=	ORDER	COUNTER FOR ERROR LIGHT RESET
R0054	DECOUNT	=	ORDER	COUNTER FOR SCALING AND DISPLAY (DEC)

R0055	SGNON	=	TEM11	TEMP FOR +,- ON
R0056	NOUNTEM	=	TEM11	COUNTER FOR MIXNOUN FETCH
R0057	DISTEM	=	TEM11	COUNTER FOR OCTAL DISPLAY VERBS
R0058	DECTEM	=	TEM11	COUNTER FOR FETCH (DEC DISPLAY VERBS)
R0059	DECTEM1	=	TEM11	TEMP FOR NUM

R0060	SGNOFF	=	DVSW	TEMP FOR +,- ON
R0061	NVTEMP	=	DVSW	TEMP FOR NV SUB
R0062	SFTEMP1	=	DVSW	STORAGE FOR SF CONST HI PART (=SFTEMP2-1)
R0063	DECTEM2	=	DVSW	TEMP FOR NUM

R0064	CODE	=	BRANCHQ	FOR DSP IN
R0065	SFTEMP2	=	BRANCHQ	STORAGE FOR SF CONST LO PART (=SFTEMP1+1)

R0066	ENTRET	=	MODE	EXIT FROM ENTER
-------	--------	---	------	-----------------

R0067	PROGREG	=	VBUF	+2	FOR GO EXEC PROGRAM
R0068	MIXTEMP	=	VBUF	+2	FOR MIXNOUN DATA
R0069	SIGNRET	=	VBUF	+2	RETURN FOR +,- ON

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R0070 ALSO PROGREG+1 ,PROGREG+2. MIXTEMP+1, MIXTEMP+2.

R0071	WDCNT	=	VBUF	+5	CHAR COUNTER FOR DSPWD
R0072	INREL	=	VBUF	+5	INPUT BUFFER SELECTOR (X,Y,Z, REG)

R0073	MIXBR	=	TEM10	INDICATOR FOR MIXED OR NORMAL NOUN
R0074	DSPMMTEM	=	TEM10	DSPCOUNT SAVE FOR DSPMM

R0075	MONTEM	=	NEWEQIND	TEMP RETURN FOR MONITOR
R0076	DSREL	=	TEM2	REL ADDRESS FOR DSPIN(TEM2 USED BY DAD1)

R0077	DSMAG	=	TEM4	MAGNITUDE STORE FOR DSPIN
R0078	IDADDTEM	=	TEM4	MIXNOUN INDIRECT ADDRESS STORAGE

R0079	COUNT	=	TEM5	FOR DSPIN (TEM5 IS USED BY DAD)
R0080	LSTPTR	=	ARETURN	LIST POINTER FOR GRABUSY
R0081	RELRET	=	ARETURN	RETURN FOR RELDSP
R0082	FREERET	=	ARETURN	RETURN FOR FREEDSP

R0083	CADRTEM	=	ESCAPE	TEMP STORAGE FOR GRAB ROUTINES
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R0084	NNADTEM	ERASE	TEMP FOR NOUN ADDRESS TABLE ENTRY
R0085	NNTYPTM	ERASE	TEMP FOR NOUN TYPE TABLE ENTRY
R0086	IDAD1TEM	ERASE	TEMP FOR INDIR ADRES TABLE ENTRY(MIXNN)
R0087			MUST = IDAD2TEM-1, = IDAD3TEM-2.
R0088	IDAD2TEM	ERASE	TEMP FOR INDIR ADRES TABLE ENTRY(MIXNN)
R0089			MUST = IDAD1TEM+1, = IDAD3TEM-1.
R0090	IDAD3TEM	ERASE	TEMP FOR INDIR ADRES TABLE ENTRY(MIXNN)
R0091			MUST = IDAD1TEM+2, = IDAD2TEM+1.

R0092 TEMPORARY ERASABLES FOR INTERRUPT ACTION

R0093	KEYTEMP1	=	WTEXT	TEMP FOR KEYRUPT, UPRUPT
R0094	DSRUPTM	=	WTEXT	TEMP FOR DSPOUT
R0095	KEYTEMP2	=	RUPTAGN	TEMP FOR KEYRUPT, UPRUPT

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R0096 THE INPUT CODES ASSUMED FOR THE KEYBOARD ARE.

R0097 0 1110000

R0098 1 00001

R0099 9 01001

R0100 VERB 10001

R0101 ERROR RES 10010

R0102 KEY RLSE 11001

R0103 + 11010

R0104 - 11011

R0105 ENTER 11100

R0106 CLEAR 11110

R0107 NOUN 11111

R0108 OUTPUT FORMAT FOR DISPLAY PANEL. SET OUTO TO AAAABCCCCCDDDDDD.

R0109 A-S SELECT A RELAYWORD. THIS DETERMINES WHICH PAIR OF CHARACTERS ARE
R0110 ENERGIZED.

R0111 B FOR SPECIAL RELAYS SUCH AS SIGNS ETC.

R0112 C-S 5 BIT RELAY CODE FOR LEFT CHAR OF PAIR SELECTED BY RELAYWORD

R0113 D-S 5 BIT RELAY CODE FOR RIGHTCHAR OF PAIR SELECTED BY RELAYWORD.

R0114 THE PANEL APPEARS AS FOLLOWS.

R0115 MD1 MD2 (MAJOR MODE)

R0116 VD1 VD2 (VERB) ND1 ND2 (NOUN)

R0117 R1D1 R1D2 R1D3 R1D4 R1D5 (R1)

R0118 R2D1 R2D2 R2D3 R2D4 R2D5 (R2)

R0119 R3D1 R3D2 R3D3 R3D4 R3D5 (R3)

R0120 EACH OF THESE IS GIVEN A DSPCOUNT NUMBER FOR USE WITHIN COMPUTATION ONLY

R0121 MD1 25 R2D1 11 ALL ARE OCTAL

R0122 MD2 24 R2D2 10

R0123 VD1 23 R2D3 7

R0124 VD2 22 R2D4 6

R0125 ND1 21 R2D5 5

R0126 ND2 20 R3D1 4

R0127 R1D1 16 R3D2 3

R0128 R1D2 15 R3D3 2

R0129 R1D3 14 R3D4 1

R0130 R1D4 13 R3D5 0

R0131 R1D5 12

R0132 THERE IS AN 11 REGISTER TABLE (DSPTAB) FOR THE DISPLAY PANEL.

R0133 DSPTAB RELAYWD BIT11 BITS 10-6 BITS 5-1

R0134 RELADD

R0135 10 1011 MD1 (25) MD2 (24)

R0136 9 1010 FLASH VD1 (23) VD2 (22)

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R0137	8	1001		ND1 (21)	ND2 (20)
R0138	7	1000	UPACT		R1D1 (16)
R0139	6	0111	+R1	R1D2 (15)	R1D3 (14)
R0140	5	0110	-R1	R1D4 (13)	R1D5 (12)
R0141	4	0101	+R2	R2D1 (11)	R2D2 (10)
R0142	3	0100	-R2	R2D3 (7)	R2D4 (6)
R0143	2	0011		R2D5 (5)	R3D1 (4)
R0144	1	0010	+R3	R3D2 (3)	R3D3 (2)
R0145	0	0001	-R3	R3D4 (1)	R3D5 (0)
R0146		0000	NO RELAYWORD		

R0147 THE 5 BIT RELAY CODES ARE,

R0148 BLANK 00000

R0149 0 10101

R0150 1 00011

R0151 2 11001

R0152 3 11011

R0153 4 01111

R0154 5 11110

R0155 6 11100

R0156 7 10011

R0157 8 11101

R0158 9 11111

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0159 06,6000 SETLOC 14000

0160 REF 227 LAST 479 06,6000 3 0001 0 FLASHON XCH Q
 0161 REF 1 06,6001 5 0112 0 TS DSEXIT
 0162 REF 1 06,6002 0 7453 1 TC FLASHON1

0163 REF 228 LAST 486 06,6003 3 0001 0 FLASHOFF XCH Q
 0164 REF 2 LAST 486 06,6004 5 0112 0 TS DSEXIT
 0165 REF 1 06,6005 0 7462 0 TC FLASHOFF1

A0166

END OF STANDARD LEAD INS.

0167	REF	1		06,6006	0	3265	0	CHARIN	TC	DSPLOCK1	BLOCK DISPLAY SYST BUT SAVE OLD	
0168	REF	20	LAST 403	06,6007	7	4513	0		MASK	BIT4	C(DSPLOCK) FOR ERROR LIGHT RESET.	
0169	REF	1		06,6010	5	0106	0		TS	21/22REG		
0170	REF	356	LAST 477	06,6011	3	0115	1		XCH	MPAC		
0171	REF	1		06,6012	5	0063	1		TS	CHAR		
0172	REF	362	LAST 479	06,6013	2	0000	0		INDEX	A		
0173				06,6014	0	6015	0		TC	+1	INPUT CODE	FUNCTION
0174	REF	1		06,6015	0	7440	0		TC	CHARALRM	0	
0175	REF	1		06,6016	0	6072	1		TC	NUM	1	
0176	REF	2	LAST 486	06,6017	0	6072	1		TC	NUM	2	
0177	REF	3	LAST 486	06,6020	0	6072	1		TC	NUM	3	
0178	REF	4	LAST 486	06,6021	0	6072	1		TC	NUM	4	
0179	REF	5	LAST 486	06,6022	0	6072	1		TC	NUM	5	
0180	REF	6	LAST 486	06,6023	0	6072	1		TC	NUM	6	
0181	REF	7	LAST 486	06,6024	0	6072	1		TC	NUM	7	
0182	REF	1		06,6025	0	6063	1		TC	89TEST	10	8
0183	REF	2	LAST 486	06,6026	0	6063	1		TC	89TEST	11	9
0184	REF	2	LAST 486	06,6027	0	7440	0		TC	CHARALRM	12	
0185	REF	3	LAST 486	06,6030	0	7440	0		TC	CHARALRM	13	
0186	REF	4	LAST 486	06,6031	0	7440	0		TC	CHARALRM	14	
0187	REF	5	LAST 486	06,6032	0	7440	0		TC	CHARALRM	15	
0188	REF	6	LAST 486	06,6033	0	7440	0		TC	CHARALRM	16	
0189	REF	7	LAST 486	06,6034	0	7440	0		TC	CHARALRM	17	
0190	REF	8	LAST 486	06,6035	0	6070	0		TC	NUM -2	20	0
0191	REF	1		06,6036	0	6252	1		TC	VERB	21	VERB
0192	REF	1		06,6037	0	6402	1		TC	ERROR	22	ERROR LIGHT RESET
0193	REF	1		06,6040	0	6057	0		TC	ABORTCAL	23	ABORT
0194	REF	8	LAST 486	06,6041	0	7440	0		TC	CHARALRM	24	
0195	REF	9	LAST 486	06,6042	0	7440	0		TC	CHARALRM	25	
0196	REF	10	LAST 486	06,6043	0	7440	0		TC	CHARALRM	26	
0197	REF	11	LAST 486	06,6044	0	7440	0		TC	CHARALRM	27	
0198	REF	12	LAST 486	06,6045	0	7440	0		TC	CHARALRM	30	
0199	REF	1		06,6046	0	7475	0		TC	VBRELDSP	31	KEY RELEASE
0200	REF	1		06,6047	0	6316	0		TC	POSGN	32	+
0201	REF	1		06,6050	0	6302	0		TC	NEGSGN	33	-
0202	REF	1		06,6051	0	6055	1		TC	ENTERJMP	34	ENTER
0203	REF	13	LAST 486	06,6052	0	7440	0		TC	CHARALRM	35	

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0204	REF	1		06,6053	0 6501 0	TC	CLEAR	36	CLEAR
0205	REF	1		06,6054	0 6274 0	TC	NOUN	37	NOUN
0206	REF	14	LAST 295	06,6055	0 5720 1	ENTERJMP	TC	POSTJUMP	
0207	REF	1		06,6056	16007 1	CADR	ENTER		
0208	REF	1		06,6057	3 6062 0	ABORTCAL	CAF	OCT32	
0209	REF	15	LAST 487	06,6060	0 5720 1	TC	POSTJUMP		FORCE DECODING OF VERB 72 AND DO RELDSP.
0210	REF	1		06,6061	16136 1	CADR	JAMEXTVB		
02101				06,6062	00032 0	OCT32	OCT	32	
0211	REF	14	LAST 438	06,6063	3 4473 0	89TEST	CAF	THREE	
0212	REF	1		06,6064	7 0615 1		MASK	DECBRNCH	
0213	REF	363	LAST 486	06,6065	1 0000 0		CCS	A	
0214	REF	9	LAST 486	06,6066	0 6072 1		TC	NUM	IF DECBRNCH IS +, 8 OR 9 OK
0215	REF	14	LAST 486	06,6067	0 7440 0		TC	CHARALRM	IF DECBRNCH IS +0, REJECT 8 OR 9
R0216	NUM ASSEMBLES OCTAL 3 BITS AT A TIME. FOR DECIMAL IT CONVERTS INCOMING								
R0217	WORD AS A FRACTION, KEEPING RESULTS TO DP.								
R0218	OCTAL RESULTS ARE LEFT IN XREG, YREG, OR ZREG. HI PART OF DEC IN XREG,								
R0219	YREG, ZREG. THE LOW PARTS IN XREGLP, YREGLP, OR ZREGLP)								
R0220	DECBRNCH IS LEFT AT +0 FOR OCT, +1 FOR + DEC, +2 FOR - DEC.								
R0221	IF DSPCOUNT WAS LEFT -, NO MORE DATA IS ACCEPTED.								
0222	REF	165	LAST 478	06,6070	3 5501 0		CAF	ZERO	
0223	REF	2	LAST 486	06,6071	5 0063 1		TS	CHAR	
0224	REF	2	LAST 149	06,6072	1 0614 0	NUM	CCS	DSPCOUNT	
0225				06,6073	0 6077 1		TC	+4	+
0226				06,6074	0 6077 1		TC	+3	+0
0227				06,6075	0 6076 0		TC	+1	-BLOCK DATA IN IF DSPCOUNT IS -
0228	REF	53	LAST 475	06,6076	0 2124 1		TC	ENDOFJOB	-0
0229	REF	1		06,6077	0 6222 0		TC	GETINREL	
0230	REF	2	LAST 148	06,6100	1 0633 0		CCS	CLPASS	IF CLPASS IS + OR +0, MAKE IT +0.
0231	REF	166	LAST 487	06,6101	3 5501 0		CAF	ZERO	
0232	REF	3	LAST 487	06,6102	5 0633 1		TS	CLPASS	
0233				06,6103	0 6104 1		TC	+1	
0234	REF	3	LAST 487	06,6104	2 0063 0		INDEX	CHAR	
0235	REF	2	LAST 173	06,6105	3 2652 1		CAF	RELTAB	
0236	REF	8	LAST 478	06,6106	7 3220 0		MASK	LOW5	
0237	REF	1		06,6107	5 0111 0		TS	CODE	
0238	REF	3	LAST 487	06,6110	3 0614 1		XCH	DSPCOUNT	
0239	REF	1		06,6111	5 0104 1		TS	COUNT	
0240	REF	4	LAST 487	06,6112	5 0614 1		TS	DSPCOUNT	

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0241	REF	1		06,6113	0 7341 0	TC	DSPIN	
0242	REF	15	LAST 487	06,6114	3 4473 0	CAF	THREE	
0243	REF	2	LAST 487	06,6115	7 0615 1	MASK	DECBRNCH	
0244	REF	364	LAST 487	06,6116	1 0000 0	CCS	A	+0, OCTAL. +1, + DEC. +2, - DEC.
0245	REF	1		06,6117	0 6130 0	TC	DECTOBIN	+
0246	REF	1		06,6120	2 0076 1	INDEX	INREL	+0 OCTAL
0247	REF	3	LAST 211	06,6121	3 0602 0	XCH	VERBREG	
0248	REF	13	LAST 274	06,6122	5 0022 1	TS	CYL	
0249	REF	14	LAST 488	06,6123	4 0022 0	CS	CYL	
0250	REF	15	LAST 488	06,6124	4 0022 0	CS	CYL	
0251	REF	16	LAST 488	06,6125	3 0022 1	XCH	CYL	
0252	REF	4	LAST 487	06,6126	6 0063 1	AD	CHAR	
0253	REF	1		06,6127	0 6146 1	TC	ENDNMTST	
0254	REF	2	LAST 488	06,6130	2 0076 1	DECTOBIN INDEX	INREL	
0255	REF	4	LAST 488	06,6131	3 0602 0	XCH	VERBREG	
0256	REF	357	LAST 486	06,6132	5 0115 1	TS	MPAC	SUM X 2EXP-14 IN MPAC
0257	REF	167	LAST 487	06,6133	3 5501 0	CAF	ZERO	
0258	REF	358	LAST 488	06,6134	5 0116 1	TS	MPAC +1	
0259	REF	8	LAST 456	06,6135	3 3232 1	CAF	TEN	10 X 2EXP-14
0260	REF	4	LAST 380	06,6136	0 5416 1	TC	SHORTMP	10SUM X 2EXP-28 IN MPAC, MPAC+1
0261	REF	359	LAST 488	06,6137	3 0116 1	XCH	MPAC +1	
0262	REF	5	LAST 488	06,6140	6 0063 1	AD	CHAR	
0263	REF	360	LAST 488	06,6141	5 0116 1	TS	MPAC +1	
0264	REF	2	LAST 488	06,6142	0 6146 1	TC	ENDNMTST	NO OF
0265	REF	361	LAST 488	06,6143	6 0115 1	AD	MPAC	OF MUST BE 5TH CHAR
0266	REF	362	LAST 488	06,6144	5 0115 1	TS	MPAC	
0267	REF	1		06,6145	0 6165 0	TC	DECEND	
0268	REF	3	LAST 488	06,6146	2 0076 1	ENDNMTST INDEX	INREL	
0269	REF	5	LAST 488	06,6147	5 0602 0	TS	VERBREG	
0270	REF	5	LAST 487	06,6150	4 0614 0	CS	DSPCOUNT	
0271	REF	4	LAST 488	06,6151	2 0076 1	INDEX	INREL	
0272	REF	1		06,6152	6 6211 0	AD	CRITCON	
0273	REF	365	LAST 488	06,6153	1 0000 0	CCS	A	
0274	REF	15	LAST 487	06,6154	0 7440 0	TC	CHARALRM	+ PATHOLOGICAL CASE
0275	REF	16	LAST 488	06,6155	0 7440 0	TC	CHARALRM	+0 IMPOSSIBLE
0276	REF	1		06,6156	0 6206 0	TC	MORNUM	-
0277	REF	16	LAST 488	06,6157	3 4473 0	ENDNUM CAF	THREE	
0278	REF	3	LAST 488	06,6160	7 0615 1	MASK	DECBRNCH	
0279	REF	366	LAST 488	06,6161	1 0000 0	CCS	A	
0280	REF	2	LAST 488	06,6162	0 6165 0	TC	DECEND	
0281	REF	6	LAST 488	06,6163	4 0614 0	ENDALL CS	DSPCOUNT	BLOCK NUMIN BY PLACING DSPCOUNT
0282	REF	2	LAST 488	06,6164	0 6207 1	TC	MORNUM +1	NEGATIVELY
0283	REF	17	LAST 488	06,6165	3 4473 0	DECEND CAF	THREE	
0284	REF	4	LAST 488	06,6166	7 0615 1	MASK	DECBRNCH	
0285	REF	367	LAST 488	06,6167	2 0000 0	INDEX	A	
0286				06,6170	0 6170 1	TC	+0	
0287	REF	1		06,6171	0 6175 1	TC	+DECSGN	+ DEC
0288	REF	3	LAST 84	06,6172	0 5157 1	TC	DMP	- DEC
0289	REF	1		06,6173	56217 0	XCADR	NEGDECON	
0290	REF	1		06,6174	0 6177 0	TC	ENDECOM	MULT SUM X 2EXP-28 IN MPAC, MPAC+1 BY

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0291	REF	4	LAST	488	06,6175	0	5157	1	+DECSGN	TC	DMP	2EXP14/10EXP5. GIVES(SUM/10EXP5)X2EXP-14
0292	REF	1			06,6176		56215	1		XCADR	DECON	IN MPAC, +1, +2.
0293	REF	363	LAST	488	06,6177	3	0117	0	ENDECOM	XCH	MPAC	+2
0294	REF	5	LAST	488	06,6200	2	0076	1		INDEX	INREL	
0295	REF	1			06,6201	5	0605	1		TS	XREGLP	-2
0296	REF	364	LAST	489	06,6202	3	0116	1		XCH	MPAC	+1
0297	REF	6	LAST	489	06,6203	2	0076	1		INDEX	INREL	
0298	REF	6	LAST	488	06,6204	5	0602	0		TS	VERBREG	
0299	REF	1			06,6205	0	6163	0		TC	ENDALL	
0300	REF	7	LAST	488	06,6206	1	0614	0	MORNUM	CCS	DSPCOUNT	DECREMENT DSPCOUNT
0301	REF	8	LAST	489	06,6207	5	0614	1		TS	DSPCOUNT	
0302	REF	54	LAST	487	06,6210	0	2124	1		TC	ENDOFJOB	
0303					06,6211		00022	1	CRITCON	OCT	22	(DEC 18)
0304					06,6212		00020	0		OCT	20	(DEC 16)
0305					06,6213		00012	1		OCT	12	(DEC 10)
0306					06,6214		00005	1		OCT	5	
0307					06,6215		00000	1		OCT	0	
0308					06,6216		05174	0	DECON	2DEC	E-5 B14	2EXP14/10EXP5 = .16384 DEC
0308					06,6217		13261	0				
0309					06,6220		72603	1	NEGDECON	OCT	72603	
0310					06,6221		64516	1		OCT	64516	

R0311 GETINREL GETS PROPER DATA REG REL ADDRESS FOR CURRENT C(DSPCOUNT) AND
 R0312 PUTS IN INTO INREL. +0 VERBREG, 1 NOJNREG, 2 XREG, 3 YREG, 4 ZREG.

0313	REF	9	LAST	489	06,6222	2	0614	0	GETINREL	INDEX	DSPCOUNT	
0314	REF	1			06,6223	3	6226	1		CAF	INRELTAB	
0315	REF	7	LAST	489	06,6224	5	0076	0		TS	INREL	(A TEMP, REG)
0316	REF	229	LAST	486	06,6225	0	0001	0		TC	Q	
0317					06,6226		00004	0	INRELTAB	OCT	4	R3D5 (DSPCOUNT = 0)
0318					06,6227		00004	0		OCT	4	R3D4 = (1)
0319					06,6230		00004	0		OCT	4	R3D3 = (2)
0320					06,6231		00004	0		OCT	4	R3D2 = (3)
0321					06,6232		00004	0		OCT	4	R3D1 = (4)
0322					06,6233		00003	1		OCT	3	R2D5 = (5)
0323					06,6234		00003	1		OCT	3	R2D4 = (6)
0324					06,6235		00003	1		OCT	3	R2D3 = (7)
0325					06,6236		00003	1		OCT	3	R2D2 = (8D)
0326					06,6237		00003	1		OCT	3	R2D1 = (9D)
0327					06,6240		00002	0		OCT	2	R1D5 = (10D)
0328					06,6241		00002	0		OCT	2	R1D4 = (11D)
0329					06,6242		00002	0		OCT	2	R1D3 = (12D)
0330					06,6243		00002	0		OCT	2	R1D2 = (13D)
0331					06,6244		00002	0		OCT	2	R1D1 = (14D)
0332	REF	24	LAST	479	06,6245	0	3062	0		TC	CCSHOLE	NO DSPCOUNT NUMBER = 15D

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0333		06,6246	00001 0	OCT	1	ND2	=(16D)
0334		06,6247	00001 0	OCT	1	ND1	=(17D)
0335		06,6250	00000 1	OCT	0	VD2	=(18D)
0336		06,6251	00000 1	OCT	0	VD1	=(19D)
0337	REF 168 LAST 488	06,6252	3 5501 0	VERB	CAF	ZERO	
0338	REF 7 LAST 489	06,6253	5 0602 0		TS	VERBREG	
0339	REF 2 LAST 487	06,6254	5 0111 0		TS	CODE	VERB CANT USE 2BLANK SINCE THAT TURNS
0340	REF 2 LAST 149	06,6255	3 3227 0		CAF	VD1	THE FLASH OFF
0341	REF 10 LAST 489	06,6256	5 0614 1		TS	DSPCOUNT	
0342	REF 2 LAST 487	06,6257	5 0104 1		TS	COUNT	
0343	REF 2 LAST 488	06,6260	0 7341 0		TC	DSPIN	
0344	REF 1	06,6261	3 6211 0		CAF	VD2	
0345	REF 3 LAST 490	06,6262	5 0104 1		TS	COUNT	
0346	REF 169 LAST 490	06,6263	3 5501 0		CAF	ZERO	
0347	REF 3 LAST 490	06,6264	5 0111 0		TS	CODE	
0348	REF 3 LAST 490	06,6265	0 7341 0		TC	DSPIN	
0349	REF 170 LAST 490	06,6266	3 5501 0	N/VCOM	CAF	ZERO	
0350	REF 5 LAST 488	06,6267	5 0615 0		TS	DECBRNCH	
0351	REF 2 LAST 148	06,6270	5 0613 0		TS	REQRET	SET FOR ENTPASO
0352	REF 1	06,6271	3 3147 0		CAF	ENDINST	IF DSPALARM OCCURS BEFORE FIRST ENTPASO
0353	REF 1	06,6272	5 0065 1		TS	ENTRET	OR NVSUB, ENTRET MUST ALREADY BE SET
A0354							TO TC ENDOFJOB
0355	REF 55 LAST 489	06,6273	0 2124 1		TC	ENDOFJOB	
0356	REF 171 LAST 490	06,6274	3 5501 0	NOUN	CAF	ZERO	
0357	REF 4 LAST 238	06,6275	5 0603 1		TS	NOUNREG	
0358	REF 1	06,6276	3 3230 0		CAF	ND1	ND1, OCT 21 (DEC 17)
0359	REF 11 LAST 490	06,6277	5 0614 1		TS	DSPCOUNT	
0360	REF 1	06,6300	0 6621 1		TC	2BLANK	
0361	REF 1	06,6301	0 6266 0		TC	N/VCOM	
0362	REF 2 LAST 488	06,6211	VD2	=	CRITCON	OCT 22	
0363	REF 1	06,6302	0 6357 0	NEGSGN	TC	SIGNTEST	
0364	REF 1	06,6303	0 6343 0		TC	-ON	
0365	REF 65 LAST 445	06,6304	3 5503 1		CAF	TWO	
0366	REF 6 LAST 490	06,6305	6 0615 0	BOTHSGN	AD	DECBRNCH	SET DEC COMP BIT TO 1 (IN DECBRNCH)
0367	REF 8 LAST 489	06,6306	2 0076 1		INDEX	INREL	BIT 5 FOR R1
0368	REF 9 LAST 456	06,6307	6 4510 1		AD	BIT7	BIT 4 FOR R2
0369	REF 7 LAST 490	06,6310	5 0615 0		TS	DECBRNCH	BIT 3 FOR R3
0370	REF 4 LAST 487	06,6311	1 0633 0	FIXCLPAS	CCS	CLPASS	IF CLPASS IS + OR +0, MAKE IT +0.
0371	REF 172 LAST 490	06,6312	3 5501 0		CAF	ZERO	
0372	REF 5 LAST 490	06,6313	5 0633 1		TS	CLPASS	
0373		06,6314	0 6315 0		TC	+1	

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0374	REF	56	LAST	490	06,6315	0	2124	1		TC	ENDOFJOB
0375	REF	2	LAST	490	06,6316	0	6357	0	POSGN	TC	SIGNTEST
0376	REF	1			06,6317	0	6322	1		TC	+ON
0377	REF	146	LAST	479	06,6320	3	4516	1		CAF	ONE
0378	REF	1			06,6321	0	6305	1		TC	BOTHSGN
0379	REF	230	LAST	489	06,6322	3	0001	0	+ON	XCH	Q
0380	REF	1			06,6323	5	0073	0		TS	SIGNRET
0381	REF	2	LAST	487	06,6324	0	6222	0		TC	GETINREL
0382	REF	9	LAST	490	06,6325	2	0076	1		INDEX	INREL
0383	REF	1			06,6326	3	6352	0		CAF	SGNTAB -2
0384	REF	1			06,6327	5	0110	1		TS	SGNOFF
0385	REF	147	LAST	491	06,6330	6	4516	1		AD	ONE
0386	REF	1			06,6331	5	0064	0		TS	SGNON
0387	REF	173	LAST	490	06,6332	3	5501	0	SGNCOM	CAF	ZERO
0388	REF	4	LAST	490	06,6333	5	0111	0		TS	CODE
0389	REF	2	LAST	491	06,6334	3	0110	1		XCH	SGNOFF
0390	REF	1			06,6335	0	7426	0		TC	11DSPIN
0391	REF	19	LAST	478	06,6336	3	4504	1		CAF	BIT11
0392	REF	5	LAST	491	06,6337	5	0111	0		TS	CODE
0393	REF	2	LAST	491	06,6340	3	0064	0		XCH	SGNON
0394	REF	2	LAST	491	06,6341	0	7426	0		TC	11DSPIN
0395	REF	2	LAST	491	06,6342	0	0073	0		TC	SIGNRET
0396	REF	231	LAST	491	06,6343	3	0001	0	-ON	XCH	Q
0397	REF	3	LAST	491	06,6344	5	0073	0		TS	SIGNRET
0398	REF	3	LAST	491	06,6345	0	6222	0		TC	GETINREL
0399	REF	10	LAST	491	06,6346	2	0076	1		INDEX	INREL
0400	REF	2	LAST	491	06,6347	3	6352	0		CAF	SGNTAB -2
0401	REF	3	LAST	491	06,6350	5	0064	0		TS	SGNON
0402	REF	148	LAST	491	06,6351	6	4516	1		AD	ONE
0403	REF	3	LAST	491	06,6352	5	0110	1		TS	SGNOFF
0404	REF	1			06,6353	0	6332	0		TC	SGNCOM
0405					06,6354	00005	1		SGNTAB	OCT	5
0406					06,6355	00003	1			OCT	3
0407					06,6356	00000	1			OCT	0

-R1
-R2
-R3

0408	REF	232	LAST	491	06,6357	3	0001	0	SIGNTEST	XCH	Q
0409	REF	4	LAST	491	06,6360	5	0073	0		TS	SIGNRET
04091	REF	18	LAST	488	06,6361	3	4473	0		CAF	THREE
04092	REF	8	LAST	490	06,6362	7	0615	1		MASK	DECBRNCH
04093	REF	368	LAST	488	06,6363	1	0000	0		CC5	A
04094	REF	57	LAST	491	06,6364	0	2124	1		TC	ENDOFJOB
0410	REF	1			06,6365	4	3171	1		CS	R1D1
0411	REF	1			06,6366	0	6374	1		TC	SGNTST1
0412	REF	1			06,6367	4	3172	1		CS	R2D1
0413	REF	2	LAST	491	06,6370	0	6374	1		TC	SGNTST1

ALLOWS +,- ONLY WHEN DSPCOUNT=R1D1,
R2D1, OR R3D1. ALLOWS ONLY FIRST OF
CONSECUTIVE +/- CHARACTERS

IF LOW 2 BITS OF DECBRNCH NOT = 0, SIGN
FOR THIS WORD ALREADY IN. REJECT.

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0414	REF	1		06,6371	4 3173 0		CS	R3D1	
0415	REF	3	LAST 491	06,6372	0 6374 1		TC	SGNTST1	
0416	REF	58	LAST 491	06,6373	0 2124 1		TC	ENDOFJOB	NO MATCH FOUND. SIGN ILLEGAL
0417	REF	12	LAST 490	06,6374	6 0614 1	SGNTST1	AD	DSPCOUNT	
0418	REF	369	LAST 491	06,6375	1 0000 0		CCS	A	
0419	REF	233	LAST 491	06,6376	0 0001 0		TC	Q	
0420	REF	25	LAST 489	06,6377	0 3062 0		TC	CCSHOLE	
0421	REF	234	LAST 492	06,6400	0 0001 0		TC	Q	
0422	REF	5	LAST 491	06,6401	0 0073 0		TC	SIGNRET	SIGN LEGAL

R0423 ERROR LIGHT RESET RESETS TMALM, DSPALARM (CHECK FAIL), PROGALM, UNBLOCKS
 R0424 ENDPULSES, RESETS ERRUPT TRAP. IT ALSO FORCES BIT 12 OF ALL DSPTAB
 R0425 ENTRIES TO ONE. RESETS UPACT LIGHT.

0426	REF	21	LAST 486	06,6402	4 4513 0	ERROR	CS	BIT4	RESTORE ORIGINAL C(DSPLOCK) BIT4 OF
0427				06,6403	2 0017 0		INHINT		STATE. THUS ERROR LIGHT RESET LEAVES
0428	REF	1		06,6404	7 0645 1		MASK	DSPLOCK	DSPLOCK UNCHANGED.
0429	REF	2	LAST 486	06,6405	6 0106 0		AD	21/22REG	
0430	REF	2	LAST 492	06,6406	5 0645 0		TS	DSPLOCK	
0431	REF	10	LAST 490	06,6407	4 4510 0		CS	BIT7	RESET ERRUPT TRAP
0432	REF	31	LAST 294	06,6410	7 0011 0		MASK	OUT1	
0433	REF	11	LAST 492	06,6411	6 4510 1		AD	BIT7	
0434	REF	32	LAST 492	06,6412	5 0011 1		TS	OUT1	
0435	REF	1		06,6413	4 6500 0		CS	CFAILCON	RESET THE C RELAYS FOR IMU FAIL, CDUFail
0436	REF	84	LAST 478	06,6414	7 0723 0		MASK	DSPTAB +11D	PIPA FAIL.
0437	REF	17	LAST 286	06,6415	6 4500 0		AD	BIT15	
0438	REF	85	LAST 492	06,6416	5 0723 1		TS	DSPTAB +11D	
0439	REF	1		06,6417	4 6476 0		CS	ERCON	
0440	REF	33	LAST 492	06,6420	7 0011 0		MASK	OUT1	
0441	REF	34	LAST 492	06,6421	5 0011 1		TS	OUT1	
0442	REF	1		06,6422	3 3232 1	TSTAB	CAF	BINCON	(DEC 10)
0443	REF	1		06,6423	5 0063 1		TS	ERCNT	ERCNT = COUNT
0444				06,6424	2 0017 0		INHINT		
0445	REF	2	LAST 492	06,6425	2 0063 0		INDEX	ERCNT	
0446	REF	86	LAST 492	06,6426	1 0710 0		CCS	DSPTAB	
0447	REF	149	LAST 491	06,6427	6 4516 1		AD	ONE	
0448	REF	1		06,6430	0 6435 0		TC	ERPLUS	
0449	REF	150	LAST 492	06,6431	6 4516 1		AD	ONE	
0450	REF	370	LAST 492	06,6432	4 0000 0	ERMINUS	CS	A	
0451	REF	1		06,6433	7 6477 1		MASK	NOTBIT12	
0452	REF	1		06,6434	0 6440 1		TC	ERCOM	
0453	REF	371	LAST 492	06,6435	4 0000 0	ERPLUS	CS	A	
0454	REF	2	LAST 492	06,6436	7 6477 1		MASK	NOTBIT12	
0455	REF	372	LAST 492	06,6437	4 0000 0		CS	A	MIGHT WANT TO RESET CLPASS, DECBRNCH,
0456	REF	3	LAST 492	06,6440	2 0063 0	ERCOM	INDEX	ERCNT	ETC.
0457	REF	87	LAST 492	06,6441	5 0710 1		TS	DSPTAB	
0458				06,6442	2 0016 1		RELINT		
0459	REF	4	LAST 492	06,6443	1 0063 0		CCS	ERCNT	

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0460	REF	1		06,6444	0 6423 1	TC	TSTAB +1	
0461	REF	26 LAST	349	06,6445	1 0727 1	CCS	WASKSET	
0462	REF	1		06,6446	0 6455 0	TC	ERROPT	
0463	REF	2 LAST	493	06,6447	0 6455 0	TC	ERROPT	
0464	REF	3 LAST	493	06,6450	0 6455 0	TC	ERROPT	
0465	REF	16 LAST	286	06,6451	3 0007 0	XCH	IN3	
0466	REF	17 LAST	493	06,6452	3 0007 0	XCH	IN3	
0467	REF	14 LAST	385	06,6453	7 4720 1	MASK	LOW7	
0468	REF	27 LAST	493	06,6454	5 0727 0	TS	WASKSET	
0469	REF	12 LAST	179	06,6455	1 0730 1	ERROPT	CCS	WASOPSET
0470	REF	1		06,6456	0 6465 0	TC	ERROR1	
0471	REF	2 LAST	493	06,6457	0 6465 0	TC	ERROR1	
0472	REF	3 LAST	493	06,6460	0 6465 0	TC	ERROR1	
0473	REF	18 LAST	493	06,6461	3 0007 0	XCH	IN3	
0474	REF	19 LAST	493	06,6462	3 0007 0	XCH	IN3	
0475	REF	1		06,6463	7 6475 0	MASK	OPTICSB	
0476	REF	13 LAST	493	06,6464	5 0730 0	TS	WASOPSET	
0477	REF	174 LAST	491	06,6465	3 5501 0	ERROR1	CAF	ZERO
0478	REF	9 LAST	295	06,6466	5 1763 1	TS	FAILREG	
0479	REF	33 LAST	197	06,6467	5 0726 1	TS	OLDEPR	
0480	REF	5 LAST	295	06,6470	5 1764 0	TS	SFAIL	
0481	REF	6 LAST	491	06,6471	5 0111 0	TS	CODE	
0482	REF	10 LAST	286	06,6472	3 5362 0	CAF	SEVEN	
0483	REF	3 LAST	491	06,6473	0 7426 0	TC	11DSPIN	TURN OFF UPACT LIGHT
0484	REF	59 LAST	492	06,6474	0 2124 1	TC	ENDOFJOB	
0485				06,6475	35000 1	OPTICSB	OCT	35000
0486				06,6476	01131 0	ERCON	OCT	01131
A0487								
A0488								
0489				06,6477	73777 1	NOTBIT12	OCT	73777
0490				06,6500	40340 1	CFAILCON	OCT	40340

BITS 1, 4, 5, 7, 10.
 PROGALM, TMFAIL, CHECK FAIL, ERRUPT TRAP
 END PULSES.

R0491 CLEAR BLANKS WHICH R1, R2, R3 IS CURRENT OR LAST TO BE DISPLAYED(PERTINE
 R0492 NT XREG,YREG,ZREG IS CLEARED). SUCCESSIVE CLEARS TAKE CARE OF EACH RX
 R0493 L/ RC UNTIL R1 IS DONE. THEN NO FURTHER ACTION

R0494 THE SINGLE COMPONENT LOAD VERBS ALLOW ONLY THE SINGLE RC THAT IS
 R0495 APPROPRIATE TO BE CLEARED.

R0496 CLPASS +0 PASS0, CAN BE BACKED UP
 R0497 +NZ HIPASS, CAN BE BACKED UP
 R0498 -NZ PASS0, CANNOT BE BACKED UP

0499 REF 13 LAST 492 06,6501 1 0614 0 CLEAR CCS DSPCOUNT

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0500	REF 151 LAST 492	06,6502 6 4516 1	AD	ONE	
0501		06,6503 0 6505 1	TC	+2	
0502	REF 152 LAST 494	06,6504 6 4516 1	AD	ONE	
0503	REF 373 LAST 492	06,6505 2 0000 0	INDEX	A	DO NOT CHANGE DSPCOUNT BECAUSE MAY
0504	REF 2 LAST 489	06,6506 3 6226 1	CAF	INRELTAB	FAIL LEGALTST.
05041	REF 11 LAST 491	06,6507 5 0076 0	TS	INREL	MUST SET INREL, EVEN FOR HIPASS.
0505	REF 6 LAST 490	06,6510 1 0633 0	CCS	CLPASS	
0506	REF 1	06,6511 0 6516 0	TC	CLPASHI	+
0507		06,6512 0 6514 1	TC	+2	+0 IF CLPASS IS +0 OR -, IT IS PASS0
0508		06,6513 0 6514 1	TC	+1	-
0509	REF 1	06,6514 0 6545 0	TC	LEGALTST	
0510	REF 1	06,6515 0 6535 1	TC	CLEAR1	
0511	REF 12 LAST 494	06,6516 1 0076 1	CLPASHI CCS	INREL	
0512	REF 13 LAST 494	06,6517 5 0076 0	TS	INREL	
0513	REF 2 LAST 494	06,6520 0 6545 0	TC	LEGALTST	
0514	REF 3 LAST 490	06,6521 3 0613 0	XCH	REQRET	
0515	REF 1	06,6522 6 6617 1	AD	DOUBLK +2	+3 TO - NUMBER. BACKS UP DATA REQUESTS
0516	REF 4 LAST 494	06,6523 5 0613 0	TS	REQRET	
0517	REF 14 LAST 494	06,6524 3 0076 0	XCH	INREL	
0518	REF 1	06,6525 5 0073 0	TS	MIXTEMP	TEMP STORAGE FOR INREL
0519	REF 8 LAST 490	06,6526 3 0602 0	XCH	VERBREG	DECREMENT VERB AND RE-DISPLAY
0520	REF 6 LAST 215	06,6527 6 4335 0	AD	NEG1	
0521	REF 9 LAST 494	06,6530 5 0602 0	TS	VERBREG	
0522	REF 132 LAST 457	06,6531 0 5654 0	TC	BANKCALL	
0523	REF 1	06,6532 16346 1	CADR	UPDATVB	
0524	REF 2 LAST 494	06,6533 3 0073 0	XCH	MIXTEMP	
0525	REF 15 LAST 494	06,6534 5 0076 0	TS	INREL	RESTORE INREL
0526	REF 1	06,6535 0 6542 1	CLEAR1 TC	CLR5	
0527	REF 153 LAST 494	06,6536 3 4516 1	CAF	ONE	
0528	REF 7 LAST 494	06,6537 6 0633 1	AD	CLPASS	ONLY IF CLPASS IS + OR +0,
0529	REF 8 LAST 494	06,6540 5 0633 1	TS	CLPASS	SET FOR HIGHER PASS.
0530	REF 60 LAST 493	06,6541 0 2124 1	TC	ENDOFJOB	
0531	REF 235 LAST 492	06,6542 3 0001 0	CLR5 XCH	Q	
0532	REF 1	06,6543 5 0106 0	TS	WRDRET	USES 5BLANK BUT AVOIDS ITS TC GETINREL
0533	REF 1	06,6544 0 6557 0	TC	5BLANK +3	
0534	REF 66 LAST 490	06,6545 4 5503 0	LEGALTST CS	TWO	
0535	REF 16 LAST 494	06,6546 6 0076 0	AD	INREL	
0536	REF 374 LAST 494	06,6547 1 0000 0	CCS	A	
0537	REF 236 LAST 494	06,6550 0 0001 0	TC	Q	LEGAL INREL G/ 2
0538	REF 26 LAST 492	06,6551 0 3062 0	TC	CCSHOLE	
0539	REF 61 LAST 494	06,6552 0 2124 1	TC	ENDOFJOB	ILLEGAL INREL= 0,1
0540	REF 237 LAST 494	06,6553 0 0001 0	TC	Q	LEGAL INREL = 2

R0541 5BLANK BLANKS 5 CHAR DISPLAY WORD IN R1, R2, OR R3. IT ALSO ZEROES XREG,
 R0542 YREG, OR ZREG. PLACE ANY + DSPCOUNT NUMBER FOR PERTINENT RC INTO DSPCOUNT
 R0543 DSPCOUNT IS LEFT SET TO LEFT MOST DSP NUMB FOR RC JUST BLANKED.

0544 REF 238 LAST 494 06,6554 3 0001 0 5BLANK XCH Q

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0545	REF	2	LAST	494	06,6555	5	0106	0	TS	WRDRET	
0546	REF	4	LAST	491	06,6556	0	6222	0	TC	GETINREL	
0547	REF	175	LAST	493	06,6557	3	5501	0	CAF	ZERO	
0548	REF	17	LAST	494	06,6560	2	0076	1	INDEX	INREL	
0549	REF	10	LAST	494	06,6561	5	0602	0	TS	VERBREG	ZERO X, Y, Z REG.
0550	REF	18	LAST	495	06,6562	2	0076	1	INDEX	INREL	
0551	REF	2	LAST	489	06,6563	5	0605	1	TS	XREGLP -2	
0552	REF	7	LAST	493	06,6564	5	0111	0	TS	CODE	
0553	REF	19	LAST	495	06,6565	2	0076	1	INDEX	INREL	ZERO PERTINENT DEC COMP BIT.
0554	REF	12	LAST	492	06,6566	4	4510	0	CS	BIT7	PROTECT OTHERS
0555	REF	9	LAST	491	06,6567	7	0615	1	MASK	DECBRNCH	
0556	REF	1			06,6570	7	6620	1	MASK	BRNCHCON	ZERO LOW 2 BITS.
0557	REF	10	LAST	495	06,6571	5	0615	0	TS	DECBRNCH	
0558	REF	20	LAST	495	06,6572	2	0076	1	INDEX	INREL	
0559	REF	1			06,6573	3	6610	0	CAF	SINBLANK -2	BLANK ISOLATED CHAR SEPARATELY
0560	REF	4	LAST	490	06,6574	5	0104	1	TS	COUNT	
0561	REF	4	LAST	490	06,6575	0	7341	0	TC	DSPIN	
0562	REF	21	LAST	495	06,6576	2	0076	1	INDEX	INREL	5BLANK1
0563	REF	2	LAST	494	06,6577	3	6613	0	CAF	DOUBLK -2	
0564	REF	14	LAST	493	06,6600	5	0614	1	TS	DSPCOUNT	
0565	REF	2	LAST	490	06,6601	0	6621	1	TC	2BLANK	
0566	REF	67	LAST	494	06,6602	4	5503	0	CS	TWO	
0567	REF	15	LAST	495	06,6603	6	0614	1	AD	DSPCOUNT	
0568	REF	16	LAST	495	06,6604	5	0614	1	TS	DSPCOUNT	
0569	REF	3	LAST	495	06,6605	0	6621	1	TC	2BLANK	
0570	REF	22	LAST	495	06,6606	2	0076	1	INDEX	INREL	
0571	REF	2	LAST	491	06,6607	3	3167	1	CAF	R1D1 -2	
0572	REF	17	LAST	495	06,6610	5	0614	1	TS	DSPCOUNT	SET DSPCOUNT TO LEFT MOST DSP NUMBER
0573	REF	3	LAST	495	06,6611	0	0106	0	TC	WRDRET	OF REG. JUST BLANKED
0574					06,6612	00016	0		SINBLANK	OCT	16
0575					06,6613	00005	1			OCT	5
0576					06,6614	00004	0			OCT	4
0577					06,6615	00015	0		DOUBLK	OCT	15
0578					06,6616	00011	1			OCT	11
0579					06,6617	00003	1			OCT	3
0580					06,6620	77774	0		BRNCHCON	OCT	77774
R0581	2BLANK BLANKS TWO CHAR. PLACE DSP NUMBER OF LEFT CHAR OF THE PAIR INTO										
R0582	DSPCOUNT. THIS NUMBER IS LEFT IN DSPCOUNT										
0583	REF	239	LAST	494	06,6621	3	0001	0	2BLANK	XCH	0
0584	REF	1			06,6622	5	0112	0	TS	BLANKRET	
0585	REF	18	LAST	495	06,6623	4	0614	0	CS	DSPCOUNT	
0586	REF	375	LAST	494	06,6624	4	0000	0	CS	A	
0587	REF	19	LAST	479	06,6625	5	0021	1	TS	SR	
0588	REF	1			06,6626	4	6637	1	CS	BLANKCON	
0589					06,6627	2	0017	0	INHINT		
0590	REF	20	LAST	495	06,6630	2	0021	0	INDEX	SR	

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0591	REF	88	LAST	492	06,6631	3	0710	1	XCH	DSPTAB	
0592	REF	376	LAST	495	06,6632	1	0000	0	CCS	A	
0593	REF	1			06,6633	0	6640	0	TC	INCNOUT	IF OLD CONTENTS +, +1 TO NOUT
0594	REF	27	LAST	494	06,6634	0	3062	0	TC	CCSHOLE	
0595					06,6635	2	0016	1	RELINT		IF -, NOUT OK
0596	REF	2	LAST	495	06,6636	0	0112	0	TC	BLANKRET	
0597					06,6637		04000	0	BLANKCON	OCT	4000
0598	REF	10	LAST	479	06,6640	3	0707	1	INCNOUT	XCH	NOUT
0599	REF	154	LAST	494	06,6641	6	4516	1	AD	ONE	
0600	REF	11	LAST	496	06,6642	5	0707	1	TS	NOUT	
0601	REF	240	LAST	495	06,6643	2	0001	1	INDEX	Q	
0602					06,6644	0	0001	0	TC	1	RETURN TO 2+ L (CALLING TC)

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R0603 ENTER PASS 0 IS THE EXECUTE FUNCTION. HIGHER ORDER ENTERS ARE TO LOAD
 R0604 DATA. THE SIGN OF REQRET DETERMINES THE PASS, + FOR PASS 0, - FOR HIGHER
 R0605 PASSES.

0606				07,6000		SETLOC 16000	
0607	REF	1		07,6000	0 7354 1	NVSUBB TC	NVSUB1 STANDARD LEAD INS. DONT MOVE.
0608	REF	1		07,6001	0 7434 0	GRABUSYB TC	GRABUSY1
0609	REF	1		07,6002	0 7456 1	NVSUBSYB TC	NVSUBSY1
0610	REF	241	LAST 496	07,6003	3 0001 0	DSPMM XCH	Q
0611	REF	1		07,6004	5 0063 1	TS	UPDATRET
0612	REF	1		07,6005	0 7423 0	TC	DSPMM1
0613	REF	1		07,6006	0 6705 0	LOADLV1 TC	LOADLV
A0614							END OF STANDARD LEAD INS.

0615	REF	176	LAST 495	07,6007	3 5501 0	ENTER CAF	ZERO	
0616	REF	9	LAST 494	07,6010	5 0633 1	TS	CLPASS	
0617	REF	2	LAST 490	07,6011	3 3147 0	CAF	ENDINST	
0618	REF	2	LAST 490	07,6012	5 0065 1	TS	ENTRET	
0619	REF	5	LAST 494	07,6013	1 0613 1	CCS	REQRET	
0620	REF	1		07,6014	0 6035 1	TC	ENTPASO	IF +, PASS 0
0621	REF	2	LAST 497	07,6015	0 6035 1	TC	ENTPASO	IF +, PASS 0
0622				07,6016	0 6017 1	TC	+1	IF -, NOT PASS 0
0623	REF	19	LAST 491	07,6017	3 4473 0	CAF	THREE	IF DEC, ALARM IF LESS THAN 5 CHAR IN,
0624	REF	11	LAST 495	07,6020	7 0615 1	MASK	DECBRNCH	BUT LEAVE REQRET - AND FLASH ON, SO
0625	REF	377	LAST 496	07,6021	1 0000 0	CCS	A	OPERATOR CAN SUPPLY MISSING NUMERICAL
0626				07,6022	0 6024 1	TC	+2	CHARACTERS AND CONTINUE.
0627	REF	1		07,6023	0 6030 1	TC	ACCEPTWD	OCTAL. ANY NUMBER OF CHAR OK.
0628	REF	19	LAST 495	07,6024	1 0614 0	CCS	DSPCOUNT	
0629	REF	1		07,6025	0 6356 1	TC	GODSPALM	LESS THAN 5 CHAR DEC(DSPCOUNT IS +)
0630	REF	2	LAST 497	07,6026	0 6356 1	TC	GODSPALM	LESS THAN 5 CHAR DEC(DSPCOUNT IS +)
0631				07,6027	0 6030 1	TC	+1	5 CHAR IN (DSPCOUNT IS -)
0632	REF	6	LAST 497	07,6030	4 0613 1	ACCEPTWD CS	REQRET	5 CHAR IN (DSPCOUNT IS -)
0633	REF	7	LAST 497	07,6031	5 0613 0	TS	REQRET	SET REQRET +.
0634	REF	133	LAST 494	07,6032	0 5654 0	TC	BANKCALL	
0635	REF	2	LAST 249	07,6033	14003 1	CADR	FLASHOFF	
0636	REF	8	LAST 497	07,6034	0 0613 0	TC	REQRET	
0637	REF	3	LAST 497		0065	ENTEXIT =	ENTRET	
0638	REF	177	LAST 497	07,6035	3 5501 0	ENTPASO CAF	ZERO	NOUN VERB SUB ENTERS HERE
0639	REF	12	LAST 497	07,6036	5 0615 0	TS	DECBRNCH	
0640	REF	11	LAST 495	07,6037	4 0602 1	TESTVB CS	VERBREG	IF VERB IS 32-77, SKIP NOUN TEST
0641	REF	1		07,6040	6 6043 0	AD	LOWVERB	32-VB
0642	REF	378	LAST 497	07,6041	1 0000 0	CCS	A	
0643	REF	1		07,6042	0 6046 0	TC	TESTNN	VERB L/ 32
0644				07,6043	00032 0	LOWVERB OCT	32	LOWER VERB THAT AVOIDS NOUN TEST
0645				07,6044	0 6045 0	TC	+1	VERB G/ 32

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0646	REF	1		07,6045	0 6130 0		TC	VERBFAN	VERB=32
0647	REF	1		07,6046	3 6107 1	TESTNN	CAF	LODNNLOC	SWITCH BANKS TO NOUN TABLE READING
0648	REF	4	LAST 146	07,6047	0 5662 0		TC	SWCALL	ROUTINE.
0649	REF	1		07,6050	2 0107 0		INDEX	MIXBR	
0650				07,6051	0 6051 0		TC	+0	
0651				07,6052	0 6054 0		TC	+2	NORMAL
0652	REF	1		07,6053	0 6210 1		TC	MIXNOUN	MIXED
0653	REF	1		07,6054	1 0054 1		CCS	NNADTEM	NORMAL
0654	REF	2	LAST 498	07,6055	0 6126 1		TC	VERBFAN -2	NORMAL IF +
0655	REF	3	LAST 497	07,6056	0 6356 1		TC	GODSPALM	NOT IN USE IF +0
0656	REF	1		07,6057	0 6067 0		TC	REQADD	SPECIFY MACHINE ADDRESS IF -
0657	REF	2	LAST 492	07,6060	3 3173 1		CAF	R3D1	AUGMENT MACHINE ADDRESS IF -0
0658	REF	20	LAST 497	07,6061	5 0614 1		TS	DSPCOUNT	
0659	REF	1		07,6062	3 0624 1		XCH	NOUNADD	
0660	REF	155	LAST 496	07,6063	6 4516 1		AD	ONE	
0661	REF	2	LAST 498	07,6064	5 0624 1		TS	NOUNADD	
0662	REF	1		07,6065	0 7225 0		TC	DSPOCTWD	
0663	REF	3	LAST 498	07,6066	0 6130 0		TC	VERBFAN	
0664	REF	18	LAST 492	07,6067	3 4500 0	REQADD	CAF	BIT15	SET CLPASS FOR PASS0 ONLY
0665	REF	10	LAST 497	07,6070	5 0633 1		TS	CLPASS	
0666	REF	3	LAST 497	07,6071	4 3147 1		CS	ENDINST	
0667	REF	1		07,6072	6 0065 1		AD	ENTEXIT	
0668	REF	379	LAST 497	07,6073	1 0000 0		CCS	A	TEST IF REACHED HERE FROM INTERNAL OR
0669	REF	1		07,6074	0 6110 1		TC	INTMATBS	FROM EXTERNAL
0670	REF	28	LAST 496	07,6075	0 3062 0		TC	CCSHOLE	
0671	REF	2	LAST 498	07,6076	0 6110 1		TC	INTMATBS	
0672	REF	1		07,6077	0 6304 0		TC	REQDATZ	EXTERNAL MACH ADDR TO BE SPECIFIED
0673	REF	13	LAST 497	07,6100	1 0615 1		CCS	DECBRNCH	
0674	REF	4	LAST 498	07,6101	0 6356 1		TC	GODSPALM	ALARM IF DECIMAL USED FOR MATBS
0675	REF	1		07,6102	3 0606 1		XCH	ZREG	OCTAL USED OK
0676	REF	3	LAST 498	07,6103	5 0624 1		TS	NOUNADD	
0677	REF	2	LAST 498	07,6104	3 6107 1		CAF	LODNNLOC	SWITCH BANKS TO NOUN TABLE READING
0678	REF	5	LAST 498	07,6105	0 5662 0		TC	SWCALL	ROUTINE.
0679	REF	4	LAST 498	07,6106	0 6130 0		TC	VERBFAN	
0680	REF	1		07,6107	13153 1	LODNNLOC	CADR	LODNNTAB	
0681	REF	22	LAST 492	07,6110	4 4513 0	INTMATBS	CS	BIT4	
0682	REF	12	LAST 497	07,6111	7 0602 1		MASK	VERBREG	MAKES VB 15 LOOK LIKE VB 05.
0683	REF	1		07,6112	6 6115 1		AD	NEG5	
0684	REF	380	LAST 498	07,6113	1 0000 0		CCS	A	
0685	REF	1		07,6114	0 6120 1		TC	DSPADD	VB NOT = 05 OR 15, DISPLAY ADDRESS.
0686				07,6115	77772 0	NEG5	OCT	77772	
0687	REF	2	LAST 498	07,6116	0 6120 1		TC	DSPADD	VB NOT = 05 OR 15, DISPLAY ADDRESS.
0688	REF	5	LAST 498	07,6117	0 6130 0		TC	VERBFAN	VB = 05 OR 15, DO NOT DISPLAY ADDRESS.
0689	REF	3	LAST 498	07,6120	3 3173 1	DSPADD	CAF	R3D1	
0690	REF	21	LAST 498	07,6121	5 0614 1		TS	DSPCOUNT	
0691	REF	4	LAST 498	07,6122	4 0624 0		CS	NOUNADD	
0692	REF	381	LAST 498	07,6123	4 0000 0		CS	A	
0693	REF	2	LAST 498	07,6124	0 7225 0		TC	DSPOCTWD	

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0694	REF	6	LAST 498	07,6125	0 6130 0		TC	VERBFAN	
0695	REF	156	LAST 498	07,6126	6 4516 1		AD	ONE	
0696	REF	5	LAST 498	07,6127	5 0624 1		TS	NOUNADD	
0697	REF	1		07,6130	4 6143 0	VERBFAN	CS	LST2CON	
0698	REF	13	LAST 498	07,6131	6 0602 0		AD	VERBREG	VERB-LST2CON
0699	REF	382	LAST 498	07,6132	1 0000 0		CCS	A	
0700	REF	157	LAST 499	07,6133	6 4516 1		AD	ONE	VERB G/ LST2CON
0701				07,6134	0 6136 0		TC	+2	
0702	REF	1		07,6135	0 6145 1		TC	VBFANDIR	VERB L/ LST2CON
0703	REF	365	LAST 489	07,6136	5 0115 1	JAMEXTVB	TS	MPAC	SPECIAL ENTRY FOR FORCING EXTENDED VERB.
0704	REF	1		07,6137	0 3323 0		TC	RELDSP	RELEASE DISPLAY SYST
0705	REF	366	LAST 499	07,6140	3 0115 1		XCH	MPAC	ALSO TURN OFF RELEASE DISPLAY SYST LIGHT
0706	REF	1		07,6141	6 6144 0		AD	LST2CADR	
0707	REF	13	LAST 455	07,6142	0 5723 1		TC	BANKJUMP	
0708				07,6143	00040 0	LST2CON	OCT	40	FIRST LST2 VERB
0709	REF	1		07,6144	12000 1	LST2CADR	CADR	LST2FAN	THE LIST2 FAN IS LOCATED IN BANK 05
0710	REF	14	LAST 499	07,6145	2 0602 1	VBFANDIR	INDEX	VERBREG	
0711	REF	1		07,6146	3 6150 0		CAF	VERBTAB	
0712	REF	14	LAST 499	07,6147	0 5723 1		TC	BANKJUMP	
0713	REF	5	LAST 498	07,6150	16356 0	VERBTAB	CADR	GODSPALM	VB00 ILLEGAL
0714	REF	1		07,6151	16372 0		CADR	DSPA	VB01 DISPLAY OCT COMP 1 (R1)
0715	REF	1		07,6152	16377 0		CADR	DSPB	VB02 DISPLAY OCT COMP 2 (R1)
0716	REF	1		07,6153	16404 0		CADR	DSPC	VB03 DISPLAY OCT COMP 3 (R1)
0717	REF	1		07,6154	16365 0		CADR	DSPAB	VB04 DISPLAY OCT COMP 1,2 (R1,R2)
0718	REF	1		07,6155	16360 0		CADR	DSPABC	VB05 DISPLAY OCT COMP 1,2,3 (R1,R2,R3)
0719	REF	1		07,6156	16476 0		CADR	DECDSP	VB06 DECIMAL DISPLAY
0720	REF	1		07,6157	15030 0		CADR	DSPDPDEC	VB07 DP DECIMAL DISPLAY (R1,R2)
0721	REF	1		07,6160	17342 1		CADR	VBRQWAIT	VB10 REQUEST WAITLIST
0722	REF	1		07,6161	17102 1		CADR	MONITOR	VB11 MONITOR OCT COMP 1 (R1)
0723	REF	2	LAST 499	07,6162	17102 1		CADR	MONITOR	VB12 MONITOR OCT COMP 2 (R1)
0724	REF	3	LAST 499	07,6163	17102 1		CADR	MONITOR	VB13 MONITOR OCT COMP 3 (R1)
0725	REF	4	LAST 499	07,6164	17102 1		CADR	MONITOR	VB14 MONITOR OCT COMP 1,2 (R1,R2)
0726	REF	5	LAST 499	07,6165	17102 1		CADR	MONITOR	VB15 MONITOR OCT COMP 1,2,3 (R1,R2,R3)
0727	REF	6	LAST 499	07,6166	17102 1		CADR	MONITOR	VB16 MONITOR DECIMAL
0728	REF	7	LAST 499	07,6167	17102 1		CADR	MONITOR	VB17 MONITOR DP DEC (R1,R2)
0729	REF	1		07,6170	17321 1	REQEXLOC	CADR	VBRQEXEC	VB20 REQUEST EXECUTIVE
0730	REF	1		07,6171	16645 1		CADR	ALOAD	VB21 LOAD COMP 1 (R1)
0731	REF	1		07,6172	16655 0		CADR	BLOAD	VB22 LOAD COMP 2 (R2)
0732	REF	1		07,6173	16671 0		CADR	CLOAD	VB23 LOAD COMP 3 (R3)
0733	REF	1		07,6174	16620 1		CADR	ABLOAD	VB24 LOAD COMP 1,2 (R1,R2)
0734	REF	1		07,6175	16564 1		CADR	ABCLOAD	VB25 LOAD COMP 1,2,3 (R1,R2,R3)
0735	REF	6	LAST 499	07,6176	16356 0		CADR	GODSPALM	VB26 SPARE
0736	REF	7	LAST 499	07,6177	16356 0		CADR	GODSPALM	VB27 SPARE
0737	REF	8	LAST 499	07,6200	16356 0		CADR	GODSPALM	VB30 SPARE
0738	REF	1		07,6201	17216 1		CADR	DSPBANK	VB31 BANK DISPLAY
0739	REF	1		07,6202	15503 0		CADR	BUMP	VB32 C(R2) INTO R3, C(R1) INTO R2
0740	REF	1		07,6203	15465 1		CADR	VBPROC	VB33 PROCEED WITHOUT DATA

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0741	REF	1	07,6204	15472 1	CADR	VBTERM	VB34 TERMINATE CURRENT TEST OR LOAD REQ
0742	REF	2 LAST 486	07,6205	15475 0	CADR	VBRELDSP	VB35 RELEASE DISPLAY SYST
0743	REF	1	07,6206	10000 0	CADR	SLAPB	VB36 FRESH START
0744	REF	1	07,6207	17273 1	ENDVBFAN CADR	MMCHANG	VB37 CHANGE MAJOR MODE

R0745 THE LIST2 VERBFAN IS LOCATED IN BANK 05.

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R0746 NNADTAB CONTAINS A RELATIVE ADDRESS, IDADDREL (IN LOW 10 BITS), REFERRING
 R0747 TO WHERE 3 CONSECUTIVE ADDRESSES ARE STORED (IN IDADDTAB).
 R0748 MIXNOUN GETS DATA AND STORES IN MIXTEMP,+1,+2. IT SETS NOUNADD FOR
 R0749 MIXTEMP.

0750	REF	2	LAST	498	07,6210	1	0054	1	MIXNOUN	CCS	NNADTEM	
0751					07,6211	0	6215	1		TC	+4	+ IN USE
0752	REF	9	LAST	499	07,6212	0	6356	1		TC	GODSPALM	+0 NOT IN USE
0753					07,6213	0	6215	1		TC	+2	- IN USE
0754					07,6214	0	6215	1		TC	+1	-0 IN USE
0755	REF	17	LAST	428	07,6215	4	4475	1		CS	SIX	
0756	REF	15	LAST	499	07,6216	6	0602	0		AD	VERBREG	
0757	REF	383	LAST	499	07,6217	1	0000	0		CCS	A	AVOID MIXNOUN SWAP FOR OTHER THAN
0758	REF	7	LAST	499	07,6220	0	6130	0		TC	VERBFAN	DISPLAY VERBS
0759	REF	29	LAST	498	07,6221	0	3062	0		TC	CCSHOLE	
0760					07,6222	0	6223	1		TC	+1	
0761	REF	68	LAST	495	07,6223	3	5503	1		CAF	TWO	
0762	REF	1			07,6224	5	0064	0	MIXNN1	TS	NOUNTEM	
0763	REF	1			07,6225	6	6254	1		AD	MIXAD	
0764	REF	6	LAST	499	07,6226	5	0624	1		TS	NOUNADD	SET NOUNADD TO MIXTEMP + K
0765	REF	2	LAST	501	07,6227	2	0064	1		INDEX	NOUNTEM	
0766	REF	1			07,6230	4	0056	0		CS	IDADITEM	GET IDADDTAB ENTRY FOR COMPONENT K
0767	REF	384	LAST	501	07,6231	4	0000	0		CS	A	OF NOUN.
0768	REF	1			07,6232	5	0063	1		TS	DECOUNT	
A0769												TEST FOR DP (FOR OCT DISPLAY). IF SO, GET
A0770												MINOR PART ONLY.
0771	REF	6	LAST	249	07,6233	7	2261	1		MASK	HI5	
0772	REF	3	LAST	278	07,6234	0	3203	0		TC	LEFT5	SF ROUT NUMBER IN A
0773	REF	1			07,6235	0	6255	0		TC	DPTEST	
0774	REF	1			07,6236	0	6242	0		TC	MIXNN2	NO DP
0775	REF	158	LAST	499	07,6237	3	4516	1		CAF	ONE	DP GET MINOR PART
0776	REF	2	LAST	501	07,6240	6	0063	1		AD	DECOUNT	
0777	REF	3	LAST	501	07,6241	5	0063	1		TS	DECOUNT	
0778	REF	4	LAST	501	07,6242	3	0063	1	MIXNN2	XCH	DECOUNT	
0779	REF	15	LAST	292	07,6243	7	4606	1		MASK	LOW10	ESUBK (NO DP) OR (ESUBK)+1 FOR DP
0780	REF	385	LAST	501	07,6244	2	0000	0		INDEX	A	PICK UP C(ESUBK) NOT DP
0781					07,6245	4	0000	0		CS	0	OR C((ESUBK)+1) FOR DP MINOR PART
0782	REF	386	LAST	501	07,6246	4	0000	0		CS	A	
0783	REF	7	LAST	501	07,6247	2	0624	0		INDEX	NOUNADD	
0784					07,6250	3	0000	1		XCH	0	STORE IN MIXTEM + K
0785	REF	3	LAST	501	07,6251	1	0064	1		CCS	NOUNTEM	
0786	REF	1			07,6252	0	6224	0		TC	MIXNN1	
0787	REF	8	LAST	501	07,6253	0	6130	0		TC	VERBFAN	
0788	REF	3	LAST	494	07,6254	0	0073	0	MIXAD	TC	MIXTEMP	
0789	REF	1			07,6255	5	0110	1	DPTEST	TS	SFTEMP1	ENTER WITH SF ROUT NUMBER IN A.
0790	REF	242	LAST	497	07,6256	3	0001	0		XCH	Q	RETURNS TO L+1 IF NO DP

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0791	REF	2	LAST	501	07,6257	3	0110	1	XCH	SFTEMP1	RETURNS TO L+2 IF DP
0792	REF	387	LAST	501	07,6260	2	0000	0	INDEX	A	
0793					07,6261	0	6262	1	TC	+1	
0794	REF	3	LAST	502	07,6262	0	0110	1	TC	SFTEMP1	OCTAL ONLY NO DP
0795	REF	4	LAST	502	07,6263	0	0110	1	TC	SFTEMP1	FRACT NO DP
0796	REF	5	LAST	502	07,6264	0	0110	1	TC	SFTEMP1	DEG NO DP
0797	REF	6	LAST	502	07,6265	0	0110	1	TC	SFTEMP1	ARITH NO DP
0798	REF	1			07,6266	0	6272	0	TC	DPTEST1	DP1OUT
0799	REF	2	LAST	502	07,6267	0	6272	0	TC	DPTEST1	DP2OUT
0800	REF	7	LAST	502	07,6270	0	0110	1	TC	SFTEMP1	OPDEG NO DP
0801	REF	3	LAST	502	07,6271	0	6272	0	TC	DPTEST1	DP3OUT
0802	REF	8	LAST	502	07,6272	2	0110	0	DPTEST1	INDEX	
0803					07,6273	0	0001	0	TC	1	RETURN TO L+2
0804	REF	243	LAST	501	07,6274	4	0001	1	REQDATX	CS	Q
0805	REF	9	LAST	497	07,6275	5	0613	0	TS	REQRET	
0806	REF	3	LAST	495	07,6276	3	3171	0	CAF	R1D1	
0807	REF	1			07,6277	0	6307	0	TC	REQCOM	
0808	REF	244	LAST	502	07,6300	4	0001	1	REQDATY	CS	Q
0809	REF	10	LAST	502	07,6301	5	0613	0	TS	REQRET	
0810	REF	2	LAST	491	07,6302	3	3172	0	CAF	R2D1	
0811	REF	2	LAST	502	07,6303	0	6307	0	TC	REQCOM	
0812	REF	245	LAST	502	07,6304	4	0001	1	REQDATZ	CS	Q
0813	REF	11	LAST	502	07,6305	5	0613	0	TS	REQRET	
0814	REF	4	LAST	498	07,6306	3	3173	1	CAF	R3D1	
0815	REF	22	LAST	498	07,6307	5	0614	1	REQCOM	TS	DSPCOUNT
0816	REF	134	LAST	497	07,6310	0	5654	0	TC	BANKCALL	
0817	REF	2	LAST	494	07,6311		14554	0	CADR	5BLANK	
0818	REF	135	LAST	502	07,6312	0	5654	0	TC	BANKCALL	
0819	REF	10	LAST	428	07,6313		14000	1	CADR	FLASHON	
0820	REF	4	LAST	498	07,6314	4	3147	1	CS	ENDINST	
0821	REF	2	LAST	498	07,6315	6	0065	1	AD	ENTEXIT	
0822	REF	388	LAST	502	07,6316	1	0000	0	CCS	A	
0823					07,6317	0	6323	0	TC	+4	ENTEXIT NOT ENDOFJOB. NVSUB INITIATED
0824	REF	30	LAST	501	07,6320	0	3062	0	TC	CCSHOLE	
0825					07,6321	0	6323	0	TC	+2	ENTEXIT NOT ENDOFJOB. NVSUB INITIATED
0826	REF	3	LAST	502	07,6322	0	0065	1	TC	ENTEXIT	ENTEXIT = ENDOFJOB. EXTERNALLY INITIATED
0827	REF	178	LAST	497	07,6323	4	5501	1	CS	ZERO	NVSUB INITIATED LOAD. SET CADRSTOR TO -0
0828	REF	2	LAST	148	07,6324	5	0627	1	TS	CADRSTOR	
0829	REF	4	LAST	502	07,6325	0	0065	1	TC	ENTEXIT	

R0830 IF NVSUB INITIATED LOAD, SET CADRSTOR TO -0 TO TELL RECALST TO RELEASE
 R0831 DISPLAY IF ENDIDLE WAS NOT USED. (NECESSARY FOR DATAWAIT)

0832	REF	5	LAST	490	07,6326	5	0603	1	TS	NOUNREG
0833	REF	246	LAST	502	07,6327	3	0001	0	UPDATNN	XCH

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0834	REF	2	LAST	497	07,6330	5	0063	1	TS	UPDATRET	
0835	REF	3	LAST	498	07,6331	3	6107	1	CAF	LODNNLOC	SWITCH BANKS TO NOUN TABLE READING
0836	REF	6	LAST	498	07,6332	0	5662	0	TC	SWCALL	ROUTINE.
0837	REF	3	LAST	501	07,6333	1	0054	1	CCS	NNADTEM	
0838	REF	159	LAST	501	07,6334	6	4516	1	AD	ONE	NORMAL
0839	REF	1			07,6335	0	6340	0	TC	PUTADD	
0840	REF	2	LAST	503	07,6336	0	6341	1	TC	PUTADD +1	MATBS DONT CHANGE NOUNADD
0841	REF	3	LAST	503	07,6337	0	6341	1	TC	PUTADD +1	MATBI DONT CHANGE NOUNADD
0842	REF	8	LAST	501	07,6340	5	0624	1	PUTADD TS	NOUNADD	
0843	REF	2	LAST	490	07,6341	3	3230	0	CAF	ND1	
0844	REF	23	LAST	502	07,6342	5	0614	1	TS	DSPCOUNT	
0845	REF	6	LAST	502	07,6343	4	0603	0	CS	NOUNREG	
0846	REF	1			07,6344	0	6353	1	TC	UPDAT1	
0847	REF	16	LAST	501	07,6345	5	0602	0	TS	VERBREG	
0848	REF	247	LAST	502	07,6346	3	0001	0	UPDATVB XCH	Q	
0849	REF	3	LAST	503	07,6347	5	0063	1	TS	UPDATRET	
0850	REF	3	LAST	490	07,6350	3	3227	0	CAF	VD1	
0851	REF	24	LAST	503	07,6351	5	0614	1	TS	DSPCOUNT	
0852	REF	17	LAST	503	07,6352	4	0602	1	CS	VERBREG	
0853	REF	389	LAST	502	07,6353	4	0000	0	UPDAT1 CS	A	
0854	REF	1			07,6354	0	7261	0	TC	DSP2BIT	
0855	REF	4	LAST	503	07,6355	0	0063	1	TC	UPDATRET	
0856	REF	16	LAST	487	07,6356	0	5720	1	GODSPALM TC	POSTJUMP	
0857	REF	1			07,6357		15442	1	CADR	DSPALARM	

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P0858 NOUN TABLES
R0859 NOUN CODE L/ 55, NORMAL CASE. NOUN CODE G/E 55, MIXED NOUN CASE.
R0860 FOR NORMAL CASE, NNADTAB CONTAINS ONE MACHINE ADDRESS FOR EACH NOUN.
R0861 +0 INDICATES NOUN NOT USED. - ENTRY INDICATES MACHINE ADDRESS TO BE
R0862 SPECIFIED. -0 ENTRY INDICATES AUGMENT OF LAST MACHINE ADDRESS.

R0863 FOR MIXED CASE, NNADTAB CONTAINS ONE INDIRECT ADDRESS(IDADDREL) IN LOW
R0864 10 BITS, AND THE COMPONENT CODE NUMBER IN THE HIGH 5 BITS.

R0865 NNTYPTAB IS A PACKED TABLE OF THE FORM MMMMMNNNNNPPPPP.

R0866 FOR THE NORMAL CASE, M-S ARE THE COMPONENT CODE NUMBER.
R0867 N-S ARE THE SF ROUTINE CODE NUMBER.
R0868 P-S ARE THE SF CONSTANT CODE NUMBER.

R0869 MIXED CASE, M-S ARE THE SF CONSTANT3 CODE NUMBER 3 COMPONENT CASE
R0870 N-S ARE THE SF CONSTANT2 CODE NUMBER
R0871 P-S ARE THE SF CONSTANT1 CODE NUMBER
R0872 N-S ARE THE SF CONSTANT2 CODE NUMBER 2 COMPONENT CASE
R0873 P-S ARE THE SF CONSTANT1 CODE NUMBER
R0874 P-S ARE THE SF CONSTANT1 CODE NUMBER 1 COMPONENT CASE

R0875 THERE IS ALSO AN INDIRECT ADDRESS TABLE(IDADDTAB) FOR MIXED CASE ONLY.
R0876 ENTRY IS OF FORM RRRRREEEEEEEEE. IDADDREL IS THE RELATIVE ADDRESS OF
R0877 THE FIRST OF THESE ENTRIES.
R0878 R-S ARE THE SF ROUTINE CODE NUMBERS FOR COMPONENT K
R0879 E-S ARE THE MACHINE ADDRESS FOR COMPONENT K
R0880 THERE IS ONE ENTRY IN THIS TABLE FOR EACH COMPONENT OF A MIXED NOUN
R0881 THEY ARE LISTED IN ORDER OF ASCENDING K.

R0882 IN OCTAL DISPLAY AND LOAD (OCT OR DEC) VERBS, EXCLUDE USE OF VERBS WHOSE
R0883 COMPONENT NUMBER IS GREATER THAN THE NUMBER OF COMPONENTS IN NOUN.
R0884 ALL MACHINE ADDRESS TO BE SPECIFIED NOUNS ARE 1 COMPONENT.
R0885 ONLY EXCEPTION IS NOUN 01 TO ALLOW OCTAL DISPLAYS AND LOADS OF
R0886 AN UNCONTROLLED NUMBER OF COMPONENTS.

R0887 IN MULTI-COMPONENT LOAD VERBS, NO MIXING OF OCTAL AND DECIMAL DATA
R0888 COMPONENT WORDS IS ALLOWED. ALARM IF VIOLATION.

R0889 IN DECIMAL LOADS OF DATA, 5 NUMERICAL CHARACTERS MUST BE KEYED IN
R0890 BEFORE EACH ENTER. IF NOT, ALARM.

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PO891	REF	69	LAST	501	07,6360	4	5503	0	DSPABC	CS	TWO							
0892	REF	1			07,6361	0	6430	0		TC	COMPTST							
0893	REF	9	LAST	503	07,6362	2	0624	0		INDEX	NOUNADD							
0894					07,6363	4	0002	1		CS	2							
0895	REF	115	LAST	381	07,6364	3	0101	1		XCH	BUF	+2						
0896	REF	160	LAST	503	07,6365	4	4516	0	DSPAB	CS	ONE							
0897	REF	2	LAST	505	07,6366	0	6430	0		TC	COMPTST							
0898	REF	10	LAST	505	07,6367	2	0624	0		INDEX	NOUNADD							
0899					07,6370	4	0001	1		CS	1							
0900	REF	116	LAST	505	07,6371	3	0100	0		XCH	BUF	+1						
0901	REF	1			07,6372	0	6457	1	DSPA	TC	TSTFORDP							
0902	REF	11	LAST	505	07,6373	2	0624	0		INDEX	NOUNADD							
0903					07,6374	4	0000	0		CS	0							
0904	REF	117	LAST	505	07,6375	3	0077	1	DSPCOM1	XCH	BUF							
0905	REF	1			07,6376	0	6411	0		TC	DSPCOM2							
0906	REF	161	LAST	505	07,6377	4	4516	0	DSPB	CS	ONE							
0907	REF	3	LAST	505	07,6400	0	6430	0		TC	COMPTST							
0908	REF	12	LAST	505	07,6401	2	0624	0		INDEX	NOUNADD							
0909					07,6402	4	0001	1		CS	1							
0910	REF	1			07,6403	0	6375	0		TC	DSPCOM1							
0911	REF	70	LAST	505	07,6404	4	5503	0	DSPC	CS	TWO							
0912	REF	4	LAST	505	07,6405	0	6430	0		TC	COMPTST							
0913	REF	13	LAST	505	07,6406	2	0624	0		INDEX	NOUNADD							
0914					07,6407	4	0002	1		CS	2							
0915	REF	2	LAST	505	07,6410	0	6375	0		TC	DSPCOM1							
0916	REF	71	LAST	505	07,6411	4	5503	0	DSPCOM2	CS	TWO		A	B	C	AB	ABC	
0917	REF	18	LAST	503	07,6412	6	0602	0		AD	VERBREG		-1	-0	+1	+2	+3	IN A
0918	REF	390	LAST	503	07,6413	1	0000	0		CCS	A		+0	+0	+0	+1	+2	IN A AFTER CCS
0919	REF	1			07,6414	0	6417	0		TC	DSPCOM3							
0920	REF	5	LAST	502	07,641													

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0940	REF 392 LAST 505	07,6435	1 0000 0	CCS	A	
0941		07,6436	0 6442 0	TC	+4	NOUN NOT = 01
0942	REF 31 LAST 502	07,6437	0 3062 0	TC	CCSHOLE	
0943		07,6440	0 6442 0	TC	+2	NOUN NOT = 01
0944	REF 2 LAST 505	07,6441	0 0111 0	TC	SFTEMP2	NOUN = 01. ANY COMP OK
0945	REF 2 LAST 498	07,6442	2 0107 0	INDEX	MIXBR	
0946	REF 1	07,6443	3 6473 1	CAF	COMPICK -1	
0947	REF 393 LAST 506	07,6444	2 0000 0	INDEX	A	
0948		07,6445	4 0000 0	CS	0	MUST NOT DESTROY NNADTEM OR NNTYPTM
0949	REF 394 LAST 506	07,6446	4 0000 0	CS	A	
0950	REF 7 LAST 501	07,6447	7 2261 1	MASK	HI5	
0951	REF 4 LAST 501	07,6450	0 3203 0	TC	LEFT5	NOUN COMP
0952	REF 10 LAST 505	07,6451	6 0110 1	AD	SFTEMP1	NOUN COMP = VERB COMP
0953	REF 395 LAST 506	07,6452	1 0000 0	CCS	A	
0954	REF 3 LAST 506	07,6453	0 0111 0	TC	SFTEMP2	NOUN COMP G/ VERB COMP
0955	REF 32 LAST 506	07,6454	0 3062 0	TC	CCSHOLE	
0956	REF 10 LAST 501	07,6455	0 6356 1	TC	GODSPALM	NOUN COMP L/ VERB COMP
0957	REF 4 LAST 506	07,6456	0 0111 0	TC	SFTEMP2	NOUN COMP = VERB COMP
0958	REF 249 LAST 505	07,6457	3 0001 0	TSTFORDP	XCH Q	TEST FOR DP. IF SO, GET MINOR PART ONLY.
0959	REF 5 LAST 501	07,6460	5 0063 1	TS	DECOUNT	
0960	REF 3 LAST 506	07,6461	2 0107 0	INDEX	MIXBR	
0961		07,6462	0 6462 1	TC	+0	
0962		07,6463	0 6465 0	TC	+2	NORMAL
0963	REF 6 LAST 506	07,6464	0 0063 1	TC	DECOUNT	MIXED CASE ALREADY HANDLED IN MIXNOUN
0964	REF 1	07,6465	0 6740 1	TC	SFRUTNOR	
0965	REF 2 LAST 501	07,6466	0 6255 0	TC	DPTEST	
0966	REF 7 LAST 506	07,6467	0 0063 1	TC	DECOUNT	NO DP
0967	REF 14 LAST 505	07,6470	3 0624 1	XCH	NOUNADD	DP
0968	REF 163 LAST 505	07,6471	6 4516 1	AD	ONE	
0969	REF 15 LAST 506	07,6472	5 0624 1	TS	NOUNADD	E+1 INTO NOUNADD FOR MINOR PART.
0970	REF 8 LAST 506	07,6473	0 0063 1	TC	DECOUNT	
0971	REF 1	07,6474	00055 1	COMPICK	ADRES NNTYPTM	
0972	REF 4 LAST 503	07,6475	00054 0		ADRES NNADTEM	
0973	REF 4 LAST 506	07,6476	2 0107 0	DECDSP	INDEX MIXBR	NORMAL MIXED
0974	REF 2 LAST 506	07,6477	3 6473 1	CAF	COMPICK -1	ADRES NNTYPTM ADRES NNADTEM
0975	REF 396 LAST 506	07,6500	2 0000 0	INDEX	A	
0976		07,6501	4 0000 0	CS	0	MUST NOT DESTROY NNADTEM OR NNTYPTM
0977	REF 397 LAST 506	07,6502	4 0000 0	CS	A	C(NNTYPTM) C(NNADTEM)
0978	REF 8 LAST 506	07,6503	7 2261 1	MASK	HI5	GET HI5 OF NNTYPTAB(NORM)OF NNADTAB(MIX)
0979	REF 5 LAST 506	07,6504	0 3203 0	TC	LEFT5	
0980	REF 9 LAST 506	07,6505	5 0063 1	TS	DECOUNT	COMP NUMBER INTO DECOUNT
0981	REF 1	07,6506	5 0064 0	DSPDCGET	TS DECTEM	PICKS UP DATA
0982	REF 16 LAST 506	07,6507	6 0624 1	AD	NOUNADD	DECTEM 1COMP +0, 2COMP +1, 3COMP +2

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0983	REF 398 LAST 506	07,6510	2 0000 0	INDEX	A	
0984		07,6511	4 0000 0	CS	0	
0985	REF 2 LAST 506	07,6512	2 0064 1	INDEX	DECTEM	
0986	REF 1	07,6513	3 0604 0	XCH	XREG	CANT USE BUF SINCE DMP USES IT.
0987	REF 3 LAST 507	07,6514	1 0064 1	CCS	DECTEM	
0988	REF 1	07,6515	0 6506 1	TC	DSPDCGET	MORE TO GET
0989	REF 179 LAST 502	07,6516	3 5501 0	DSPDCPUT CAF	ZERO	DISPLAYS DATA
0990	REF 367 LAST 499	07,6517	5 0116 1	TS	MPAC +1	DECOUNT 1COMP +0, 2COMP +1, 3COMP +2
0991	REF 368 LAST 507	07,6520	5 0117 0	TS	MPAC +2	
0992	REF 10 LAST 506	07,6521	2 0063 0	INDEX	DECOUNT	
0993	REF 5 LAST 505	07,6522	3 3171 0	CAF	R1D1	
0994	REF 26 LAST 505	07,6523	5 0614 1	TS	DSPCOUNT	
0995	REF 11 LAST 507	07,6524	2 0063 0	INDEX	DECOUNT	
0996	REF 2 LAST 507	07,6525	4 0604 1	CS	XREG	
0997	REF 369 LAST 507	07,6526	5 0115 1	TS	MPAC	
0998	REF 1	07,6527	0 6756 0	TC	SFCONUM	SF CON NUMB IN A
0999	REF 5 LAST 506	07,6530	5 0111 0	TS	SFTEMP2	
1000	REF 136 LAST 502	07,6531	0 5654 0	TC	BANKCALL	SWITCH BANKS TO SF CONSTANT READING
1001	REF 1	07,6532	13213 0	CADR	GTSFOUT	ROUTINE. LOADS SFTEMP1, SFTEMP2.
1002	REF 5 LAST 506	07,6533	2 0107 0	INDEX	MIXBR	
1003		07,6534	0 6534 0	TC	+0	
1004	REF 1	07,6535	0 6540 0	TC	DSPSFNOR	
1005	REF 1	07,6536	0 6746 1	TC	SFRUTMIX	
1006	REF 1	07,6537	0 6551 0	TC	DEC DSP3	
1007	REF 2 LAST 506	07,6540	0 6740 1	DSPSFNOR TC	SFRUTNOR	
1008	REF 2 LAST 507	07,6541	0 6551 0	TC	DEC DSP3	
1009	REF 137 LAST 507	07,6542	0 5654 0	DSPDCEND TC	BANKCALL	ALL SFOUT ROUTINES END HERE
1010	REF 1	07,6543	15241 1	CADR	DSPDECWD	
1011	REF 12 LAST 507	07,6544	1 0063 0	CCS	DECOUNT	
1012		07,6545	0 6547 1	TC	+2	
1013	REF 6 LAST 505	07,6546	0 0065 1	TC	ENTEXIT	
1014	REF 13 LAST 507	07,6547	5 0063 1	TS	DECOUNT	
1015	REF 1	07,6550	0 6516 0	TC	DSPDCPUT	MORE TO DISPLAY
1016	REF 399 LAST 507	07,6551	2 0000 0	DEC DSP3 INDEX	A	
1017	REF 1	07,6552	3 6554 0	CAF	SFOUTABR	
1018	REF 15 LAST 499	07,6553	0 5723 1	TC	BANKJUMP	
1019	REF 2 LAST 503	07,6554	15442 1	SFOUTABR CADR	DSPALARM	ALARM IF DEC DISP WITH OCTAL ONLY NOUN
1020	REF 1	07,6555	16542 0	CADR	DSPDCEND	
1021	REF 1	07,6556	14645 0	CADR	DEGOUTSF	
1022	REF 1	07,6557	14743 1	CADR	ARTOUTSF	
1023	REF 1	07,6560	14752 1	CADR	DP1OUTSF	
1024	REF 1	07,6561	14757 1	CADR	DP2OUTSF	
1025	REF 1	07,6562	14653 1	CADR	OPDEGOUT	

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1026 REF 1 07,6563 14761 1 CADR DP3OUTSF
 1027 07,6564 ENDRTOU EQUALS

R1028 THE FOLLOWING IS ATYPICAL SF ROUTINE . IT USES MPAC. LEAVES RESU
 R1029 LTS IN MPAC, MPAC+1. ENDS WITH TC DSPDCEND

1030 REF 2 LAST 496 06,6645 SETLOC INCNOUT +5

R1031 DEGOUTSF SCALES BY .18 THE LOW 14 BITS OF ANGLE , ADDING .18 FOR
 R1032 NUMBERS IN THE NEGATIVE (AGC) RANGE.

1033 REF 180 LAST 507 06,6645 3 5501 0 DEGOUTSF CAF ZERO
 1034 REF 370 LAST 507 06,6646 5 0117 0 TS MPAC +2 SET INDEX FOR FULL SCALE
 1035 REF 1 06,6647 0 6707 1 TC FIXRANGE
 1036 06,6650 0 6652 0 TC +2 NO AUGMENT NEEDED (SFTEMP1 AND 2 ARE 0)
 1037 REF 1 06,6651 0 6700 0 TC SETAUG SET AUGMENTER ACCORDING TO C(MPAC +2)
 1038 REF 1 06,6652 0 6722 0 TC DEGCOM

R1039 OPDEGOUT SCALES BY .09 FOR ONE RANGE AND BY .45 FOR THE OTHER.
 R1040 FOR THE .45 RANGE A .2 BIAS IS ALSO ADDED.

R1041 OPDEGOUT USED TO TEST BIT 13 OF WASOPSET (1 = 90 DEG RANGE, 0 = 180).
 R1042 SINCE THAT BIT IS ALWAYS 1 IN BLOCK 50 - 100, DON'T TEST IT NOW

1047 REF 371 LAST 508 06,6653 1 0115 0 OPDEGOUT CCS MPAC 90 DEG RANGE ALWAYS
 1048 REF 372 LAST 508 06,6654 3 0115 1 XCH MPAC IF POS OR POS 0 THEN ADD BIAS AND
 1049 06,6655 0 6660 1 TC +3 CORRECT FOR POSSIBLE OVERFLOW
 1050 REF 1 06,6656 0 6670 0 TC NEGOUT IF NEG NON ZERO
 1051 REF 7 LAST 494 06,6657 6 4335 0 AD NEG1 IF NEG ZERO SUBTRACT 1
 1052 REF 1 06,6660 6 6742 0 AD 20BIAS
 1053 REF 373 LAST 508 06,6661 5 0115 1 BIASCOM TS MPAC TEST FOR OVERFLOW
 1054 06,6662 0 6666 1 TC +4 NO OVFLOW
 1055 REF 19 LAST 498 06,6663 3 4500 0 CAF BIT15 IF OVFLOW
 1056 REF 374 LAST 508 06,6664 6 0115 1 AD MPAC
 1057 REF 375 LAST 508 06,6665 5 0115 1 TS MPAC
 1058 REF 72 LAST 505 06,6666 3 5503 1 CAF TWO SET MULTIPLIER TO .45
 1059 REF 2 LAST 507 06,6667 0 6646 0 TC DEGOUTSF +1
 1060 REF 376 LAST 508 06,6670 3 0115 1 NEGOUT XCH MPAC NEGATIVE CASE
 1061 REF 2 LAST 508 06,6671 6 6742 0 AD 20BIAS
 1062 REF 400 LAST 507 06,6672 1 0000 0 CCS A
 1063 REF 1 06,6673 0 6661 0 TC BIASCOM IF POS THEN SUBTRACT 1 BECAUSE OF 2SCOM
 1064 REF 33 LAST 506 06,6674 0 3062 0 TC CCSHOLE
 1065 REF 164 LAST 506 06,6675 6 4516 1 AD ONE IF NEG RESTORE SUM
 1066 06,6676 4 0000 0 COM IF NEG 0 LEAVE NEG 0

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1067	REF	2	LAST	508	06,6677	0	6661	0	TC	BIASCOM	
1068	REF	377	LAST	508	06,6700	2	0117	1	SETAUG	INDEX	MPAC +2
1069	REF	1			06,6701	3	6737	1		CAF	DEGTAB2
1070	REF	6	LAST	507	06,6702	5	0111	0		TS	SFTEMP2
1071	REF	378	LAST	509	06,6703	2	0117	1		INDEX	MPAC +2
1072	REF	1			06,6704	3	6734	1		CAF	DEGTAB1
1073	REF	11	LAST	506	06,6705	5	0110	1		TS	SFTEMP1
1074	REF	250	LAST	506	06,6706	0	0001	0		TC	Q
1075	REF	251	LAST	509	06,6707	3	0001	0	FIXRANGE	XCH	Q
1076	REF	4	LAST	238	06,6710	5	0106	0		TS	WDRET
1077	REF	379	LAST	509	06,6711	1	0115	0		CCS	MPAC
1078	REF	5	LAST	509	06,6712	0	0106	0		TC	WDRET
1079	REF	6	LAST	509	06,6713	0	0106	0		TC	WDRET
1080					06,6714	0	6715	1		TC	+1
1081	REF	20	LAST	508	06,6715	4	4500	1		CS	BIT15
1082	REF	380	LAST	509	06,6716	7	0115	0		MASK	MPAC
1083	REF	381	LAST	509	06,6717	5	0115	1		TS	MPAC
1084	REF	7	LAST	509	06,6720	2	0106	1		INDEX	WDRET
1085					06,6721	0	0001	0		TC	1
1086	REF	382	LAST	509	06,6722	2	0117	1	DEGCOM	INDEX	MPAC +2
1087	REF	2	LAST	509	06,6723	3	6737	1		CAF	DEGTAB2
1088	REF	383	LAST	509	06,6724	5	0116	1		TS	MPAC +1
1089	REF	384	LAST	509	06,6725	2	0117	1		INDEX	MPAC +2
1090	REF	2	LAST	509	06,6726	3	6734	1		CAF	DEGTAB1
1091	REF	385	LAST	509	06,6727	3	0115	1		XCH	MPAC
1092	REF	5	LAST	488	06,6730	0	5416	1		TC	SHORTMP
1093	REF	2	LAST	382	06,6731	0	5171	0		TC	DAD
1094	REF	12	LAST	509	06,6732		00110	1		ADRES	SFTEMP1
1095	REF	1			06,6733	0	6750	0		TC	SCOUTEND
1096					06,6734	05605	1		DEGTAB1	OCT	05605
1097					06,6735	02702	0			OCT	02702
1098					06,6736	16314	0			OCT	16314
1099					06,6737	03656	1		DEGTAB2	OCT	03656
1100					06,6740	21727	0			OCT	21727
1101					06,6741	31463	1			OCT	31463
1102					06,6742	16040	1		20BIAS	OCT	16040
1103	REF	7	LAST	509	06,6743	3	0111	0	ARTOUTSF	XCH	SFTEMP2
1104	REF	386	LAST	509	06,6744	5	0116	1		TS	MPAC +1
1105	REF	13	LAST	509	06,6745	3	0110	1		XCH	SFTEMP1
1106	REF	387	LAST	509	06,6746	3	0115	1		XCH	MPAC
1107	REF	6	LAST	509	06,6747	0	5416	1		TC	SHORTMP

LOADS SFTEMP1 AND SFTEMP2 WITH THE DP AUGMENTER CONSTANT

IF MPAC IS + RETURN TO L+1
IF MPAC IS - RETURN TO L+2 AFTER MASKING OUT THE SIGN BIT

LOADS MULTIPLIER, DOES SHORTMP, AND ADDS AUGMENTER.

ADJUSTED ANGLE IN A

HIGH PART OF .18
.09

.45

LOW PART OF .18
.09

.45

20 DEG BIAS FOR OPTICS

ASSUMES POINT AT LEFT OF DP SFCON.

H1 PART OF SFCONSTANT

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1108	REF	17	LAST	503	06,6750	0 5720 1	SCOUTEND	TC	POSTJUMP	
1109	REF	2	LAST	507	06,6751	16542 0		CADR	DSPDCEND	
1110	REF	1			06,6752	0 6764 1	DP1OUTSF	TC	DPOUT	SCALES MPAC, MPAC +1 BY DP SCALE FACTOR
1111	REF	388	LAST	509	06,6753	3 0117 0		XCH	MPAC +2	IN SFTEMP1, SFTEMP2. THEN SCALE RESULT
1112	REF	389	LAST	510	06,6754	3 0116 1		XCH	MPAC +1	BY B14.
1113	REF	390	LAST	510	06,6755	5 0115 1		TS	MPAC	
1114	REF	2	LAST	509	06,6756	0 6750 0		TC	SCOUTEND	
1115	REF	2	LAST	510	06,6757	0 6764 1	DP2OUTSF	TC	DPOUT	SCALES MPAC, MPAC +1 BY DP SCALE FACTOR
1116	REF	3	LAST	510	06,6760	0 6750 0		TC	SCOUTEND	
1117	REF	3	LAST	510	06,6761	0 6764 1	DP3OUTSF	TC	DPOUT	ASSUMES POINT BETWEEN BITS 7-8 OF HIGH
1118	REF	1			06,6762	0 7213 0		TC	TPLEFT7	PART OF SFCON. SHIFTS RESULTS LEFT 7.
1119	REF	4	LAST	510	06,6763	0 6750 0		TC	SCOUTEND	
R1120	DPOUT PICKS UP FRESH DATA FOR BOTH HI AND LO COMPONENTS.									
R1121	THIS IS NEEDED FOR TIME DISPLAY.									
1122	REF	252	LAST	509	06,6764	3 0001 0	DPOUT	XCH	Q	
1123	REF	15	LAST	328	06,6765	5 0122 0		TS	OVFIND	
1124	REF	6	LAST	507	06,6766	2 0107 0		INDEX	MIXBR	
1125					06,6767	0 6767 1		TC	+0	
1126	REF	1			06,6770	0 7025 1		TC	DPOUTNOR	
1127	REF	14	LAST	507	06,6771	2 0063 0		INDEX	DECOUNT	
1128	REF	2	LAST	501	06,6772	4 0056 0		CS	IDADITEM	GET IDADDTAB ENTRY FOR COMPONENT K
1129	REF	401	LAST	508	06,6773	4 0000 0		CS	A	OF NOUN.
1130	REF	16	LAST	501	06,6774	7 4606 1		MASK	LOW10	E SUBK
1131	REF	391	LAST	510	06,6775	5 0117 0	DPOUTCOM	TS	MPAC +2	
1132					06,6776	2 0017 0		INHINT		
1133	REF	392	LAST	510	06,6777	2 0117 1		INDEX	MPAC +2	
1134					06,7000	4 0000 0		CS	0	MIXED NORMAL
1135					06,7001	4 0000 0		COM		C(ESUBK) C(E)
1136	REF	393	LAST	510	06,7002	3 0115 1		XCH	MPAC	
1137	REF	394	LAST	510	06,7003	2 0117 1		INDEX	MPAC +2	
1138					06,7004	4 0001 1		CS	1	C((E SUBK)+1) C(E+1)
1139					06,7005	2 0016 1		RELINT		
1140					06,7006	4 0000 0		COM		
1141	REF	395	LAST	510	06,7007	3 0116 1		XCH	MPAC +1	
1142	REF	396	LAST	510	06,7010	1 0116 0		CCS	MPAC +1	TEST IF LOW PART +0 IN CASE PICKING UP
1143					06,7011	0 7014 0		TC	+3	TIME, IF SO COULD HAVE OVFLD, SO GET
1144	REF	1			06,7012	0 7021 0		TC	+0CASE	UP TO DATE HIGH PART. IF NOT +0, NO
1145					06,7013	0 7014 0		TC	+1	PROBLEM.
1146	REF	5	LAST	489	06,7014	0 5157 1	+0RET	TC	DMP	

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1147	REF 14 LAST 509	06,7015	50107 1	XCADR	SFTEMP1	
1148	REF 138 LAST 507	06,7016	0 5654 0	TC	BANKCALL	
1149	REF 9 LAST 380	06,7017	07154 0	CADR	TPAGREE	
1150	REF 16 LAST 510	06,7020	0 0122 0	TC	OVFIND	
1151	REF 397 LAST 510	06,7021	2 0117 1	+OCASE	INDEX	MPAC +2
1152		06,7022	6 0000 1	AD	0	
1153	REF 398 LAST 511	06,7023	3 0115 1	XCH	MPAC	
1154	REF 1	06,7024	0 7014 0	TC	+ORET	
1155	REF 17 LAST 506	06,7025	4 0624 0	DPOUTNOR	CS	NOUNADD
1156	REF 402 LAST 510	06,7026	4 0000 0	CS	A	E
1157	REF 1	06,7027	0 6775 1	TC	DPOUTCOM	

R1158 THIS IS A SPECIAL PURPOSE VERB FOR DISPLAYING A DOUBLE PRECISION AGC
 R1159 WORD AS 10 DECIMAL DIGITS ON THE AGC DISPLAY PANEL. IT CAN BE USED WITH
 R1160 ANY NOUN, EXCEPT MIXED NOUNS. IT DISPLAYS THE CONTENTS
 R1161 OF THE REGISTER NOUNADD IS POINTING TO. IF USED WITH NOUNS WHICH ARE
 R1162 INHERENTLY NOT DP SUCH AS THE CDU COUNTERS THE DISPLAY WILL BE GARBAGE.
 R1163 DISPLAY IS IN R1 AND R2 ONLY WITH THE SIGN IN R1.

1164	REF 7 LAST 510	06,7030	2 0107 0	DSPDPDEC	INDEX	MIXBR	
1165		06,7031	0 7031 1	TC	+0		
1166		06,7032	0 7034 1	TC	+2		NORMAL NOUN
1167	REF 3 LAST 507	06,7033	0 7442 1	TC	DSPALARM		
1168	REF 18 LAST 511	06,7034	2 0624 0	INDEX	NOUNADD		
1169		06,7035	4 0000 0	CS	0		
1170		06,7036	4 0000 0	COM			
1171	REF 399 LAST 511	06,7037	3 0115 1	XCH	MPAC		LOAD MPAC WITH HIGH ORDER PART
1172	REF 19 LAST 511	06,7040	2 0624 0	INDEX	NOUNADD		
1173		06,7041	4 0001 1	CS	1		
1174		06,7042	4 0000 0	COM			
1175	REF 400 LAST 511	06,7043	3 0116 1	XCH	MPAC +1		LOAD MPAC+1 WITH LOW ORDER PART
1176	REF 6 LAST 507	06,7044	3 3171 0	CAF	R1D1		
1177	REF 27 LAST 507	06,7045	5 0614 1	TS	DSPCOUNT		
1178	REF 181 LAST 508	06,7046	3 5501 0	CAF	ZERO		
1179	REF 401 LAST 511	06,7047	5 0117 0	TS	MPAC +2		
1180	REF 139 LAST 511	06,7050	0 5654 0	TC	BANKCALL		
1181	REF 10 LAST 511	06,7051	07154 0	CADR	TPAGREE		
1182	REF 1	06,7052	0 7315 1	TC	DSP2DEC		
1183	REF 7 LAST 507	06,7053	0 0065 1	ENDDPDEC	TC	ENTEXIT	

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P1184 LOAD VERBS

1185	REF	1		07,6564		SETLOC	ENDRTOUT	
1186	REF	73	LAST 508	07,6564	4 5503 0	ABCLOAD	CS	TWO
1187	REF	5	LAST 505	07,6565	0 6430 0		TC	COMPTTEST
1188	REF	1		07,6566	3 6715 1		CAF	VBSP1LD
1189	REF	2	LAST 494	07,6567	0 6345 0		TC	UPDATVB -1
1190	REF	1		07,6570	0 6274 0		TC	REQDATX
1191	REF	1		07,6571	3 6716 1		CAF	VBSP2LD
1192	REF	3	LAST 512	07,6572	0 6345 0		TC	UPDATVB -1
1193	REF	1		07,6573	0 6300 1		TC	REQDATY
1194	REF	1		07,6574	3 6717 0		CAF	VBSP3LD
1195	REF	4	LAST 512	07,6575	0 6345 0		TC	UPDATVB -1
1196	REF	2	LAST 498	07,6576	0 6304 0		TC	REQDATZ
1197	REF	18	LAST 501	07,6577	4 4475 1	PUTXYZ	CS	SIX
1198	REF	1		07,6600	0 6720 1		TC	ALLDC/OC
1199	REF	4	LAST 503	07,6601	3 6107 1		CAF	LODNNLOC
1200	REF	7	LAST 503	07,6602	0 5662 0		TC	SWCALL
1201	REF	182	LAST 511	07,6603	3 5501 0		CAF	ZERO
1202	REF	1		07,6604	0 7000 0		TC	PUTCOM
1203	REF	20	LAST 511	07,6605	2 0624 0		INDEX	NOUNADD
1204				07,6606	5 0000 1		TS	0
1205	REF	165	LAST 508	07,6607	3 4516 1		CAF	ONE
1206	REF	2	LAST 512	07,6610	0 7000 0		TC	PUTCOM
1207	REF	21	LAST 512	07,6611	2 0624 0		INDEX	NOUNADD
1208				07,6612	5 0001 0		TS	1
1209	REF	74	LAST 512	07,6613	3 5503 1		CAF	TWO
1210	REF	3	LAST 512	07,6614	0 7000 0		TC	PUTCOM
1211	REF	22	LAST 512	07,6615	2 0624 0		INDEX	NOUNADD
1212				07,6616	5 0002 0		TS	2
1213	REF	2	LAST 497	07,6617	0 6705 0		TC	LOADLV
1214	REF	166	LAST 512	07,6620	4 4516 0	ABLOAD	CS	ONE
1215	REF	6	LAST 512	07,6621	0 6430 0		TC	COMPTTEST
1216	REF	2	LAST 512	07,6622	3 6715 1		CAF	VBSP1LD
1217	REF	5	LAST 512	07,6623	0 6345 0		TC	UPDATVB -1
1218	REF	2	LAST 512	07,6624	0 6274 0		TC	REQDATX
1219	REF	2	LAST 512	07,6625	3 6716 1		CAF	VBSP2LD
1220	REF	6	LAST 512	07,6626	0 6345 0		TC	UPDATVB -1
1221	REF	2	LAST 512	07,6627	0 6300 1		TC	REQDATY
1222	REF	9	LAST 419	07,6630	4 4477 0	PUTXY	CS	FIVE
1223	REF	2	LAST 512	07,6631	0 6720 1		TC	ALLDC/OC
1224	REF	5	LAST 512	07,6632	3 6107 1		CAF	LODNNLOC
1225	REF	8	LAST 512	07,6633	0 5662 0		TC	SWCALL

TEST THAT THE 3 DATA WORDS LOADED ARE ALL DEC OR ALL OCT.
SWITCH BANKS TO NOUN TABLE READING ROUTINE.
X COMP

Y COMP

Z COMP

TEST THAT THE 2 DATA WORDS LOADED ARE ALL DEC OR ALL OCT.
SWITCH BANKS TO NOUN TABLE READING ROUTINE.

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1226	REF 183	LAST 512	07,6634	3 5501 0		CAF	ZERO	X COMP
1227	REF 4	LAST 512	07,6635	0 7000 0		TC	PUTCOM	
1228	REF 23	LAST 512	07,6636	2 0624 0		INDEX	NOUNADD	
1229			07,6637	5 0000 1		TS	0	
1230	REF 167	LAST 512	07,6640	3 4516 1		CAF	ONE	Y COMP
1231	REF 5	LAST 513	07,6641	0 7000 0		TC	PUTCOM	
1232	REF 24	LAST 513	07,6642	2 0624 0		INDEX	NOUNADD	
1233			07,6643	5 0001 0		TS	1	
1234	REF 3	LAST 512	07,6644	0 6705 0		TC	LOADLV	
1235	REF 3	LAST 512	07,6645	0 6274 0	ALOAD	TC	REQDATX	
1236	REF 6	LAST 512	07,6646	3 6107 1		CAF	LODNNLOC	SWITCH BANKS TO NOUN TABLE READING
1237	REF 9	LAST 512	07,6647	0 5662 0		TC	SWCALL	ROUTINE.
1238	REF 184	LAST 513	07,6650	3 5501 0		CAF	ZERO	X COMP
1239	REF 6	LAST 513	07,6651	0 7000 0		TC	PUTCOM	
1240	REF 25	LAST 513	07,6652	2 0624 0		INDEX	NOUNADD	
1241			07,6653	5 0000 1		TS	0	
1242	REF 4	LAST 513	07,6654	0 6705 0		TC	LOADLV	
1243	REF 168	LAST 513	07,6655	4 4516 0	BLOAD	CS	ONE	
1244	REF 7	LAST 512	07,6656	0 6430 0		TC	COMPTST	
1245	REF 21	LAST 509	07,6657	3 4500 0		CAF	BIT15	SET CLPASS FOR PASS0 ONLY
1246	REF 11	LAST 498	07,6660	5 0633 1		TS	CLPASS	
1247	REF 3	LAST 512	07,6661	0 6300 1		TC	REQDATY	
1248	REF 7	LAST 513	07,6662	3 6107 1		CAF	LODNNLOC	SWITCH BANKS TO NOUN TABLE READING
1249	REF 10	LAST 513	07,6663	0 5662 0		TC	SWCALL	ROUTINE.
1250	REF 169	LAST 513	07,6664	3 4516 1		CAF	ONE	
1251	REF 7	LAST 513	07,6665	0 7000 0		TC	PUTCOM	
1252	REF 26	LAST 513	07,6666	2 0624 0		INDEX	NOUNADD	
1253			07,6667	5 0001 0		TS	1	
1254	REF 5	LAST 513	07,6670	0 6705 0		TC	LOADLV	
1255	REF 75	LAST 512	07,6671	4 5503 0	CLOAD	CS	TWO	
1256	REF 8	LAST 513	07,6672	0 6430 0		TC	COMPTST	
1257	REF 22	LAST 513	07,6673	3 4500 0		CAF	BIT15	SET CLPASS FOR PASS0 ONLY
1258	REF 12	LAST 513	07,6674	5 0633 1		TS	CLPASS	
1259	REF 3	LAST 512	07,6675	0 6304 0		TC	REQDATZ	
1260	REF 8	LAST 513	07,6676	3 6107 1		CAF	LODNNLOC	SWITCH BANKS TO NOUN TABLE READING
1261	REF 11	LAST 513	07,6677	0 5662 0		TC	SWCALL	ROUTINE.
1262	REF 76	LAST 513	07,6700	3 5503 1		CAF	TWO	
1263	REF 8	LAST 513	07,6701	0 7000 0		TC	PUTCOM	
1264	REF 27	LAST 513	07,6702	2 0624 0		INDEX	NOUNADD	
1265			07,6703	5 0002 0		TS	2	
1266	REF 6	LAST 513	07,6704	0 6705 0		TC	LOADLV	
1267	REF 185	LAST 513	07,6705	3 5501 0	LOADLV	CAF	ZERO	
1268	REF 14	LAST 498	07,6706	5 0615 0		TS	DECBRNCH	
1269	REF 186	LAST 513	07,6707	4 5501 1		CS	ZERO	
1270	REF 1		07,6710	5 0632 0		TS	LOADSTAT	
1271	REF 4	LAST 503	07,6711	4 3227 1		CS	VD1	TO BLOCK NUMERICAL CHARACTERS AND

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1272	REF	28	LAST	511	07,6712	5 0614 1	TS	DSPCOUNT	CLEAR AFTER A COMPLETED LOAD	
1273	REF	18	LAST	510	07,6713	0 5720 1	TC	POSTJUMP	AFTER COMPLETED LOAD, GO TO RECALTST	
1274	REF	1			07,6714	15600 0	CADR	RECALTST	TO SEE IF THERE IS RECALL FROM ENDIDLE.	
1275					07,6715	00021 1	VBSP1LD	OCT	21	VB21 = ALOAD
1276					07,6716	00022 1	VBSP2LD	OCT	22	VB22 = BLOAD
1277					07,6717	00023 0	VBSP3LD	OCT	23	VB23 = CLOAD
1278	REF	15	LAST	510	07,6720	5 0063 1	ALLDC/OC	TS	DECOUNT	TESTS THAT DATA WORDS LOADED ARE EITHER
1279	REF	253	LAST	510	07,6721	3 0001 0		XCH	Q	ALL DEC OR ALL OCT. ALARMS IF NOT.
1280	REF	1			07,6722	5 0106 0		TS	DECRET	
1281	REF	15	LAST	513	07,6723	4 0615 1		CS	DECBRNCH	
1282	REF	21	LAST	495	07,6724	5 0021 1		TS	SR	
1283	REF	22	LAST	514	07,6725	4 0021 0		CS	SR	
1284	REF	23	LAST	514	07,6726	4 0021 0		CS	SR	SHIFTED RIGHT 2
1285	REF	403	LAST	511	07,6727	1 0000 0		CCS	A	DEC COMP BITS IN LOW 3
1286					07,6730	0 6732 1		TC	+2	SOME ONES IN LOW 3
1287	REF	2	LAST	514	07,6731	0 0106 0		TC	DECRET	ALL ZEROS. ALL OCTAL. OK
1288	REF	16	LAST	514	07,6732	6 0063 1		AD	DECOUNT	DEC COMP = 7 FOR 3COMP, =6 FOR 2COMP
1289	REF	404	LAST	514	07,6733	1 0000 0		CCS	A	(BUT IT HAS BEEN DECREMENTED BY CCS)
1290	REF	11	LAST	506	07,6734	0 6356 1		TC	GODSPALM	MUST MATCH 6 FOR 3COMP, 5 FOR 2COMP.
1291	REF	34	LAST	508	07,6735	0 3062 0		TC	CCSHOLE	
1292	REF	12	LAST	514	07,6736	0 6356 1		TC	GODSPALM	
1293	REF	3	LAST	514	07,6737	0 0106 0		TC	DECRET	ALL REQUIRED ARE DEC. OK
1294	REF	254	LAST	514	07,6740	3 0001 0	SFRUTNOR	XCH	Q	GETS SF ROUTINE NUMBER FOR NORMAL CASE
1295	REF	1			07,6741	5 0112 0		TS	EXITEM	
1296	REF	2	LAST	287	07,6742	3 3221 0		CAF	MID5	
1297	REF	2	LAST	506	07,6743	7 0055 0		MASK	NNTYPTM	
1298	REF	1			07,6744	0 3174 0		TC	RIGHT5	
1299	REF	2	LAST	514	07,6745	0 0112 0		TC	EXITEM	SF ROUTINE NUMBER IN A
1300	REF	255	LAST	514	07,6746	3 0001 0	SFRUTMIX	XCH	Q	GETS SF ROUTINE NUMBER FOR MIXED CASE
1301	REF	3	LAST	514	07,6747	5 0112 0		TS	EXITEM	
1302	REF	17	LAST	514	07,6750	2 0063 0		INDEX	DECOUNT	
1303	REF	3	LAST	510	07,6751	4 0056 0		CS	IDADITEM	GET IDADDTAB ENTRY FOR COMPONENT K
1304	REF	405	LAST	514	07,6752	4 0000 0		CS	A	OF NOUN.
1305	REF	9	LAST	506	07,6753	7 2261 1		MASK	H15	
1306	REF	6	LAST	506	07,6754	0 3203 0		TC	LEFT5	
1307	REF	4	LAST	514	07,6755	0 0112 0		TC	EXITEM	SF ROUTINE NUMBER IN A
1308	REF	256	LAST	514	07,6756	3 0001 0	SFCONUM	XCH	Q	GETS SF CONSTANT NUMBER
1309	REF	5	LAST	514	07,6757	5 0112 0		TS	EXITEM	
1310	REF	8	LAST	511	07,6760	2 0107 0		INDEX	MIXBR	
1311					07,6761	0 6761 1		TC	+0	
1312	REF	1			07,6762	0 6775 1		TC	CONUMNOR	NORMAL NOUN

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1313	REF	18	LAST	514	07,6763	2	0063	0	INDEX	DECOUNT	MIXED NOUN	
1314	REF	9	LAST	487	07,6764	3	3220	1	CAF	LOW5		
1315	REF	3	LAST	514	07,6765	7	0055	0	MASK	NNTYPTM		
1316	REF	19	LAST	515	07,6766	2	0063	0	INDEX	DECOUNT		
1317	REF	1			07,6767	2	6772	1	INDEX	DISPLACE		
1318					07,6770	0	0000	1	TC	0		
R1319	DO TC	SFRET	(DECOUNT=0), DO TC	RIGHT5 (DECOUNT=1), DO TC	LEFT5 (DECOUNT=2)							
1320	REF	6	LAST	514	07,6771	0	0112	0	SFRET	TC	EXITEM	SF CON NUMBER IN A
1321	REF	1			07,6772	0	6771	0	DISPLACE	TC	SFRET	
1322	REF	2	LAST	514	07,6773	0	3174	0		TC	RIGHT5	
1323	REF	7	LAST	514	07,6774	0	3203	0		TC	LEFT5	
1324	REF	10	LAST	515	07,6775	3	3220	1	CONUMNOR	CAF	LOW5	NORMAL NOUN ALWAYS GETS LOW 5 OF
1325	REF	4	LAST	515	07,6776	7	0055	0		MASK	NNTYPTM	
1326	REF	7	LAST	515	07,6777	0	0112	0		TC	EXITEM	
1327	REF	20	LAST	515	07,7000	5	0063	1	PUTCOM	TS	DECOUNT	
1328	REF	257	LAST	514	07,7001	3	0001	0		XCH	Q	
1329	REF	4	LAST	514	07,7002	5	0106	0		TS	DECRET	
1330	REF	187	LAST	513	07,7003	3	5501	0		CAF	ZERO	
1331	REF	17	LAST	511	07,7004	5	0122	0		TS	OVFIND	
1332	REF	21	LAST	515	07,7005	2	0063	0		INDEX	DECOUNT	
1333	REF	3	LAST	495	07,7006	3	0607	0		XCH	XREGLP	
1334	REF	402	LAST	511	07,7007	5	0116	1		TS	MPAC +1	
1335	REF	22	LAST	515	07,7010	2	0063	0		INDEX	DECOUNT	
1336	REF	3	LAST	507	07,7011	3	0604	0		XCH	XREG	
1337	REF	403	LAST	515	07,7012	5	0115	1		TS	MPAC	
1338	REF	9	LAST	514	07,7013	2	0107	0		INDEX	MIXBR	
1339					07,7014	0	7014	0		TC	+0	
1340	REF	1			07,7015	0	7043	1		TC	PUTNORM	NORMAL NOUN
R1341	IF MIXNOUN,	PLACE	ADDRESS FOR	COMPONENT K INTO	NOUNADD							
1342	REF	23	LAST	515	07,7016	2	0063	0		INDEX	DECOUNT	
1343	REF	4	LAST	514	07,7017	4	0056	0		CS	IDADITEM	GET IDADDTAB ENTRY FOR COMPONENT K
1344	REF	406	LAST	514	07,7020	4	0000	0		CS	A	OF NOUN.
1345	REF	17	LAST	510	07,7021	7	4606	1		MASK	LOW10	EK FOR CURRENT NOUN
1346					07,7022	2	5777	1		EXTEND		
1347	REF	24	LAST	515	07,7023	6	0063	1		SJ	DECOUNT	
1348	REF	28	LAST	513	07,7024	5	0624	1		TS	NOUNADD	PLACE (E SUB K) - K INTO NOUNADD
1349	REF	16	LAST	514	07,7025	1	0615	1		CCS	DECBRNCH	
1350	REF	1			07,7026	0	7055	0		TC	PUTDECSF	+ DEC
1351	REF	2	LAST	507	07,7027	0	6746	1		TC	SFRUTMIX	+0 OCTAL
1352	REF	3	LAST	506	07,7030	0	6255	0		TC	DPTEST	
1353	REF	1			07,7031	0	7053	0		TC	PUTCOM2	NO DP
A1354												TEST FOR DP SCALE FOR OCT LOAD. IF SO,
A1355												+0 INTO MAJOR PART. SET NOUNADD FOR
A1356												

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1358	REF	29	LAST	515	07,7033	6	0624	1	AD	NOUNADD	
1359	REF	30	LAST	516	07,7034	5	0624	1	TS	NOUNADD	(ESUBK)-K+1 OR E+1
1360	REF	25	LAST	515	07,7035	6	0063	1	AD	DECOUNT	NOUNADD NOW SET FOR MINOR PART
1361	REF	26	LAST	516	07,7036	5	0063	1	TS	DECOUNT	(ESUBK)+1 OR E+1 INTO DECOUNT
1362	REF	188	LAST	515	07,7037	3	5501	0	CAF	ZERO	NOUNADD SET FOR MINOR PART
1363	REF	27	LAST	516	07,7040	2	0063	0	INDEX	DECOUNT	
1364					07,7041	4	7777	0	TS	0	-1
1365	REF	2	LAST	515	07,7042	0	7053	0	TC	PUTCOM2	ZERO MAJOR PART(ESUBK OR E)
1366	REF	17	LAST	515	07,7043	1	0615	1	PUTNORM	CC5	DECBRNCH
1367	REF	2	LAST	515	07,7044	0	7055	0	TC	PUTDECSF	+ DEC
1368	REF	3	LAST	507	07,7045	0	6740	1	TC	SFRUTNOR	+0 OCTAL
1369	REF	4	LAST	515	07,7046	0	6255	0	TC	DPTEST	
1370	REF	3	LAST	516	07,7047	0	7053	0	TC	PUTCOM2	NO DP
1371	REF	189	LAST	516	07,7050	3	5501	0	CAF	ZERO	
1372	REF	28	LAST	516	07,7051	5	0063	1	TS	DECOUNT	
1373	REF	1			07,7052	0	7032	1	TC	PUTDPCOM	
1374	REF	404	LAST	515	07,7053	3	0115	1	PUTCOM2	XCH	MPAC
1375	REF	5	LAST	515	07,7054	0	0106	0	TC	DECRET	
R1376	PUTDECSF FINDS MIXBR AND DECOUNT STILL SET FROM PUTCOM										
1377	REF	2	LAST	507	07,7055	0	6756	0	PUTDECSF	TC	SFCONUM
1378	REF	8	LAST	509	07,7056	5	0111	0	TS	SFTEMP2	
1379	REF	140	LAST	511	07,7057	0	5654	0	TC	BANKCALL	SWITCH BANKS TO SF CONSTANT READING
1380	REF	1			07,7060		13222	1	CADR	GTSFIN	ROUTINE. LOADS SFTEMP1, SFTEMP2.
1381	REF	10	LAST	515	07,7061	2	0107	0	INDEX	MIXBR	
1382					07,7062	0	7062	1	TC	+0	
1383	REF	1			07,7063	0	7066	0	TC	PUTSFNOR	
1384	REF	3	LAST	515	07,7064	0	6746	1	TC	SFRUTMIX	
1385	REF	1			07,7065	0	7067	1	TC	PUTDCSF2	
1386	REF	4	LAST	516	07,7066	0	6740	1	PUTSFNOR	TC	SFRUTNOR
1387	REF	407	LAST	515	07,7067	2	0000	0	PUTDCSF2	INDEX	A
1388	REF	1			07,7070	3	7072	0	CAF	SFINTABR	
1389	REF	16	LAST	507	07,7071	0	5723	1	TC	BANKJUMP	SWITCH BANKS FOR EXPANSION ROOM
1390	REF	4	LAST	511	07,7072		15442	1	SFINTABR	CADR	ALARM IF DEC LOAD WITH OCTAL ONLY NOUN
1391	REF	1			07,7073		15140	0	CADR	BINROUND	
1392	REF	1			07,7074		15054	1	CADR	DEGINSF	
1393	REF	1			07,7075		15127	1	CADR	ARTHINSF	
1394	REF	1			07,7076		15161	0	CADR	DPINSF	
1395	REF	1			07,7077		15207	0	CADR	DPINSF2	
1396	REF	1			07,7100		15143	0	CADR	OPTDEGIN	
1397	REF	2	LAST	516	07,7101		15161	0	CADR	DPINSF	SAME AS ARITHDP1
1398					07,7102				ENDROUTIN	EQJALS	

R1399 SCALE FACTORS FOR THOSE ROUTINES NEEDING THEM ARE AVAILABLE IN SFTEMP1.

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R1400 ALL SFIN ROUTINES USE MPAC MPAC+1. LEAVE RESULT IN A. END WITH TC DECRET

1401 REF 1 06,7054 SETLOC ENDDPDEC +1

R1402 DEGINSF APPLIES 1000/180 = 5.5555(10) = 5.43434(8)

1403	REF 6 LAST 510	06,7054	0 5157 1	DEGINSF	TC	DMP	SF ROUTINE FOR DEC DEGREES
1404	REF 1	06,7055	57121 1		XCADR	DEGCON1	MULT BY 5.5 5(10)X2/-3
1405	REF 405 LAST 516	06,7056	1 0116 0		CCS	MPAC +1	THIS ROUNDS OFF MPAC+1 BEFORE SHIFT
1406	REF 20 LAST 491	06,7057	3 4504 1		CAF	BIT11	LEFT 3, AND CAUSES 360.00 TO OF/UF
1407		06,7060	0 7062 1		TC	+2	WHEN SHIFTED LEFT AND ALARM.
1408	REF 21 LAST 517	06,7061	4 4504 0		CS	BIT11	
1409	REF 406 LAST 517	06,7062	6 0116 1		AD	MPAC +1	
1410	REF 1	06,7063	0 7226 0		TC	2ROUND +2	
1411	REF 141 LAST 516	06,7064	0 5654 0		TC	BANKCALL	LEFT 1
1412	REF 8 LAST 95	06,7065	06367 0		CADR	SL1 +3	
1413	REF 142 LAST 517	06,7066	0 5654 0	DEGINSF2	TC	BANKCALL	LEFT 2
1414	REF 9 LAST 517	06,7067	06367 0		CADR	SL1 +3	
1415	REF 1	06,7070	0 7235 1		TC	TESTOFUF	
1416	REF 143 LAST 517	06,7071	0 5654 0		TC	BANKCALL	RETURNS IF NO OF/UF
1417	REF 10 LAST 517	06,7072	06367 0		CADR	SL1 +3	LEFT 3
1418	REF 407 LAST 517	06,7073	1 0115 0		CCS	MPAC	
1419	REF 1	06,7074	0 7100 1		TC	SIGNFIX	IF+, GO TO SIGNFIX
1420	REF 2 LAST 517	06,7075	0 7100 1		TC	SIGNFIX	IF +0, GO TO SIGNFIX
1421		06,7076	4 0000 0		COM		IF -, USE -MAGNITUDE +1
1422	REF 408 LAST 517	06,7077	5 0115 1		TS	MPAC	IF -0, USE +0
1423	REF 18 LAST 515	06,7100	1 0122 1	SIGNFIX	CCS	OVFIND	
1424	REF 1	06,7101	0 7116 0		TC	SGNT01	IF OVERFLOW
1425	REF 1	06,7102	0 7112 1		TC	ENDSCALE	NO OVERFLOW/UNDERFLOW
1426	REF 409 LAST 517	06,7103	1 0115 0		CCS	MPAC	IF UF FORCE SIGN TO 0 EXCEPT -180
1427	REF 35 LAST 514	06,7104	0 3062 0		TC	CCSHOLE	
1428	REF 1	06,7105	0 7114 1		TC	NEG180	
1429		06,7106	0 7107 0		TC	+1	
1430	REF 410 LAST 517	06,7107	3 0115 1		XCH	MPAC	
1431	REF 21 LAST 390	06,7110	7 4476 1		MASK	POSMAX	
1432	REF 411 LAST 517	06,7111	5 0115 1		TS	MPAC	
1433	REF 19 LAST 514	06,7112	0 5720 1	ENDSCALE	TC	POSTJUMP	
1434	REF 4 LAST 516	06,7113	17053 1		CADR	PUTCOM2	
1435	REF 22 LAST 517	06,7114	4 4476 1	NEG180	CS	POSMAX	
1436	REF 2 LAST 517	06,7115	0 7111 1		TC	ENDSCALE -1	
1437	REF 412 LAST 517	06,7116	4 0115 0	SGNT01	CS	MPAC	IF OF FORCE SIGN TO 1
1438	REF 23 LAST 517	06,7117	7 4476 1		MASK	POSMAX	
1439	REF 408 LAST 516	06,7120	4 0000 0		CS	A	
1440	REF 3 LAST 517	06,7121	0 7111 1		TC	ENDSCALE -1	
1441		06,7122	26161 0	DEGCON1	2DEC	5.555555555 B-3	
C1441		06,7123	30707 1				

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1442				06,7124	21616 0	DEGCON2	2DEC	2.222222222 B-2		
C1442				06,7125	07071 0					
1443				06,7126	71527 1	NEG.2	OCT	-06250	= .197753906 I.E. THE BIAS SCALED	
1444	REF	7	LAST	517	06,7127	0 5157 1	ARTHINSF	TC	DMP	SCALES MPAC, +1 BY SFTEMP1, SFTEMP2.
1445	REF	15	LAST	511	06,7130	50107 1		XCADR	SFTEMP1	ASSUMES POINT BETWEEN HI AND LO PARTS
1446	REF	413	LAST	517	06,7131	3 0117 0		XCH	MPAC +2	OF SFCN. SHIFTS RESULTS LEFT BY 14.
1447	REF	414	LAST	518	06,7132	3 0116 1		XCH	MPAC +1	(BY TAKING RESULTS FROM MPAC+1, MPAC+2)
1448	REF	415	LAST	518	06,7133	3 0115 1		XCH	MPAC	
1449	REF	409	LAST	517	06,7134	1 0000 0		CCS	A	
1450	REF	5	LAST	516	06,7135	0 7442 1		TC	DSPALARM	TOO LARGE A LOAD
1451	REF	2	LAST	516	06,7136	0 7140 0		TC	BINROUND	
1452	REF	6	LAST	518	06,7137	0 7442 1		TC	DSPALARM	TOO LARGE A LOAD
1453	REF	2	LAST	517	06,7140	0 7224 1	BINROUND	TC	2ROUND	
1454	REF	2	LAST	517	06,7141	0 7235 1		TC	TESTOFUF	
1455	REF	4	LAST	517	06,7142	0 7112 1		TC	ENDSCALE	RETURNS IF NO OF/UF
1456	REF	416	LAST	518	06,7143	1 0115 0	OPTDEGIN	CC5	MPAC	OPTICS SCALING ROUTINE
1457	REF	1			06,7144	0 7150 1		TC	OPDEGIN2	LOW RANGE 0 TO 90 DEG ALWAYS
1458	REF	2	LAST	518	06,7145	0 7150 1		TC	OPDEGIN2	
1459	REF	7	LAST	518	06,7146	0 7442 1		TC	DSPALARM	REJECT - INPUT. ALARM
1460	REF	8	LAST	518	06,7147	0 7442 1		TC	DSPALARM	DITTO
R1461	NO LONGER DO WE TEST BIT 13 OF WASOP5ET TO DETERMINE RANGE. RANGE NOW									
R1462	IS ALWAYS 90 DEG (BLOCK 50 - 100)									
1470	REF	417	LAST	518	06,7150	3 0115 1	OPDEGIN2	XCH	MPAC	RANGE IS 90 DEG
1471	REF	1			06,7151	6 7126 0		AD	NEG.2	SUBTRACT BIAS
1472	REF	418	LAST	518	06,7152	5 0115 1		TS	MPAC	
1473	REF	8	LAST	518	06,7153	0 5157 1		TC	DMP	MULT BY 100 / 45 B-2
1474	REF	1			06,7154	57123 0		XCADR	DEGCON2	
1475	REF	19	LAST	390	06,7155	3 4503 0		CAF	BIT12	ROUND AS IN DEGINSF
1476	REF	419	LAST	518	06,7156	6 0116 1		AD	MPAC +1	
1477	REF	3	LAST	518	06,7157	0 7226 0		TC	2ROUND +2	
1478	REF	1			06,7160	0 7066 0		TC	DEGINSF2	
1479	REF	9	LAST	518	06,7161	0 5157 1	DPINSF	TC	DMP	SCALES MPAC, MPAC +1 BY SFTEMP1,
1480	REF	16	LAST	518	06,7162	50107 1		XCADR	SFTEMP1	SFTEMP2. STORES LOW PART OF RESULT
1481	REF	420	LAST	518	06,7163	3 0117 0		XCH	MPAC +2	IN (E SUBK) +1 OR E+1
1482					06,7164	6 0000 1		DOUBLE		
1483	REF	421	LAST	518	06,7165	5 0117 0		TS	MPAC +2	
1484	REF	190	LAST	516	06,7166	3 5501 0		CAF	ZERO	
1485	REF	422	LAST	518	06,7167	6 0116 1		AD	MPAC +1	
1486	REF	4	LAST	518	06,7170	0 7226 0		TC	2ROUND +2	

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1487	REF	3	LAST	518	06,7171	0	7235	1	TC	TESTOFUF	
1488	REF	11	LAST	516	06,7172	2	0107	0	INDEX	MIXBR	RETURNS IF NO OF/UF
1489					06,7173	0	7173	0	TC	+0	
1490	REF	1			06,7174	0	7205	1	TC	DPINORM	
1491	REF	29	LAST	516	06,7175	3	0063	1	XCH	DECOUNT	MIXEDNOUN
1492	REF	30	LAST	519	06,7176	5	0063	1	TS	DECOUNT	
1493	REF	31	LAST	516	06,7177	6	0624	1	DPINCOM	AD	NOUNADD
1494	REF	258	LAST	515	06,7200	5	0001	0	TS	Q	MIXED E SUBK E NORMAL
1495	REF	423	LAST	518	06,7201	3	0116	1	XCH	MPAC +1	
1496	REF	259	LAST	519	06,7202	2	0001	1	INDEX	Q	
1497					06,7203	5	0001	0	TS	1	PLACE LOW PART IN
1498	REF	5	LAST	518	06,7204	0	7112	1	TC	ENDSCALE	(E SUBK) +1 MIXED
1499	REF	191	LAST	518	06,7205	3	5501	0	DPINORM	CAF	E +1 NORMAL
1500	REF	1			06,7206	0	7177	1	TC	DPINCOM	
1501	REF	10	LAST	518	06,7207	0	5157	1	DPINSF2	TC	DMP
1502	REF	17	LAST	518	06,7210		50107	1		XCADR	SFTEMP1
1503	REF	2	LAST	510	06,7211	0	7213	0		TC	TPLEFT7
1504	REF	3	LAST	516	06,7212	0	7163	1		TC	DPINSF +2
1505	REF	260	LAST	519	06,7213	3	0001	0	TPLEFT7	XCH	Q
1506	REF	9	LAST	516	06,7214	5	0111	0		TS	SFTEMP2
1507	REF	19	LAST	512	06,7215	3	4475	0		CAF	SIX
1508	REF	18	LAST	519	06,7216	5	0110	1	LEFT7COM	TS	SFTEMP1
1509	REF	144	LAST	517	06,7217	0	5654	0		TC	BANKCALL
1510	REF	11	LAST	517	06,7220		06364	0		CADR	SL1
1511	REF	19	LAST	519	06,7221	1	0110	0		CCS	SFTEMP1
1512	REF	1			06,7222	0	7216	0		TC	LEFT7COM
1513	REF	10	LAST	519	06,7223	0	0111	0		TC	SFTEMP2
1514	REF	424	LAST	519	06,7224	3	0116	1	2ROUND	XCH	MPAC +1
1515					06,7225	6	0000	1		DOUBLE	
1516	REF	425	LAST	519	06,7226	5	0116	1		TS	MPAC +1
1517	REF	261	LAST	519	06,7227	0	0001	0		TC	Q
1518	REF	426	LAST	519	06,7230	6	0115	1		AD	MPAC
1519	REF	427	LAST	519	06,7231	5	0115	1		TS	MPAC
1520	REF	262	LAST	519	06,7232	0	0001	0		TC	Q
1521	REF	19	LAST	517	06,7233	5	0122	0		TS	OVFIND
1522	REF	263	LAST	519	06,7234	0	0001	0	2RNDEND	TC	Q
1523	REF	20	LAST	519	06,7235	1	0122	1	TESTOFUF	CCS	OVFIND
1524	REF	9	LAST	518	06,7236	0	7442	1		TC	DSPALARM
										RETURNS IF NO OF/UF OF	

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1525	REF 264	LAST 519	06,7237	0 0001 0
1526	REF 10	LAST 519	06,7240	0 7442 1

TC	Q
TC	DSPALARM

UF

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P1527 MONITOR ALLOWS OTHER KEYBOARD ACTIVITY. IT IS ENDED BY VERB TERMINATE,
R1528 ANY NVSUB CALL THAT PASSES THE DSPLOCK, OR ANOTHER MONITOR.

R1529 MONITOR ACTION IS SUSPENDED, BUT NOT ENDED, BY ANY KEYBOARD ACTION,
R1530 EXCEPT ERROR LIGHT RESET. IT BEGINS AGAIN WHEN KEY RELEASE IS PERFORMED.
R1531 MONITOR SAVES THE NOUN AND APPROPRIATE DISPLAY VERB IN MONSAVE. IT SAVES
R1532 NOUNADD IN MONSAVE1, IF NOUN = MACHINE ADDRESS TO BE SPECIFIED. BIT 15 OF
R1533 MONSAVE1 IS THE KILL MONITOR SIGNAL (KILLER BIT).

R1534 MONSAVE INDICATES IF MONITOR IS ON(+=ON, +0=OFF)
R1535 IF MONSAVE IS +, MONITOR ENTERS NO REQUEST, BUT TURNS KILLER BIT OFF.
R1536 IF MONSAVE IS +0, MONITOR ENTERS REQUEST AND TURNS KILLER BIT OFF.

R1537 NVSUB AND VB=TERMINATE TURN KILL MONITOR BIT ON.

R1538 IF KILLER BIT IS ON, MONREQ ENTERS NO FURTHER REQUESTS, ZEROS MONSAVE
R1539 AND MONSAVE1 (TURNING OFF KILLER BIT).

R1540 MONITOR DOESN'T TEST FOR MATBS SINCE NVSUB CAN HANDLE INTERNAL MATBS NOW
1541 REF 1 07,7102 SETLOC ENDRUTIN

1542	REF 23 LAST 513	07,7102	4 4500 1	MONITOR	CS	BIT15	
1543	REF 32 LAST 519	07,7103	7 0624 0		MASK	NOUNADD	
1544	REF 428 LAST 519	07,7104	5 0116 1	MONIT1	TS	MPAC +1	TEMP STORAGE
1545	REF 1	07,7105	3 7421 1		CAF	LOW6	
1546	REF 19 LAST 505	07,7106	7 0602 1		MASK	VERBREG	
1547	REF 8 LAST 515	07,7107	0 3203 0		TC	LEFT5	
1548	REF 17 LAST 488	07,7110	5 0022 1		TS	CYL	
1549	REF 18 LAST 521	07,7111	3 0022 1		XCH	CYL	
1550	REF 8 LAST 505	07,7112	6 0603 1		AD	NOUNREG	
1551	REF 429 LAST 521	07,7113	5 0115 1		TS	MPAC	TEMP STORAGE
1552	REF 2 LAST 148	07,7114	4 0630 0		CS	GRABLOCK	NEITHER CASE SEARCHES LIST.
1553	REF 77 LAST 513	07,7115	6 5503 1		AD	TWO	
1554	REF 410 LAST 518	07,7116	1 0000 0		CCS	A	
1555	REF 1	07,7117	0 3356 1		TC	RELDSP1	GRABLOCK=0,1. +0 INTO DSPLOCK AND
1556		07,7120	0 7123 0		TC	+3	TURN OFF KEY RLSE LIGHT.
1557	REF 36 LAST 517	07,7121	0 3062 0		TC	CCSHOLE	
1558	REF 1	07,7122	0 3257 1		TC	DSPLOCK0	GRABLOCK=2. +0 INTO DSPLOCK (BIT4 OF
A1559							STATE) AND LEAVE KEY RELEASE LIGHT ALONE
1560		07,7123	2 0017 0		INHINT		
1561	REF 2 LAST 148	07,7124	1 0625 1		CCS	MONSAVE	
1562		07,7125	0 7131 0		TC	+4	IF MONSAVE WAS +, NO REQUEST
1563	REF 171 LAST 515	07,7126	3 4516 1		CAF	ONE	IF MONSAVE WAS 0, REQUEST MONREQ
1564	REF 59 LAST 456	07,7127	0 2173 0		TC	WAITLIST	
1565	REF 1	07,7130	17137 1		CADR	MONREQ	
1566	REF 430 LAST 521	07,7131	3 0115 1		XCH	MPAC	
1567	REF 3 LAST 521	07,7132	5 0625 0		TS	MONSAVE	PLACE MONITOR VERB AND NOUN INTO MONSAVE
1568	REF 431 LAST 521	07,7133	3 0116 1		XCH	MPAC +1	

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1569	REF	2 LAST 148	07,7134	5 0626 0		TS	MONSAVE1	ZERO THE KILL MONITOR BIT
1570			07,7135	2 0016 1		RELINT		
1571	REF	4 LAST 497	07,7136	0 0065 1		TC	ENTRET	
1572	REF	8 LAST 478	07,7137	0 2677 0	MONREQ	TC	READTIME +1	CALLED BY WAITLIST
1573	REF	2 LAST 477	07,7140	0 2736 1		TC	LODSAMPT	TIME IS SNATCHED IN RUPT FOR NOUN 65
1574	REF	3 LAST 522	07,7141	1 0626 1		CCS	MONSAVE1	
1575			07,7142	0 7146 0		TC	+4	IF KILLER BIT = 0, ENTER REQUESTS
1576			07,7143	0 7146 0		TC	+3	IF KILLER BIT = 0, ENTER REQUESTS
1577	REF	1	07,7144	0 7155 1		TC	KILLMON	IF KILLER BIT = 1, NO REQUESTS
1578	REF	2 LAST 522	07,7145	0 7155 1		TC	KILLMON	IF KILLER BIT = 1, NO REQUESTS
1579	REF	1	07,7146	3 7161 0		CAF	MONDEL	
1580	REF	60 LAST 521	07,7147	0 2173 0		TC	WAITLIST	ENTER WAITLIST REQUEST FOR MONREQ
1581	REF	2 LAST 521	07,7150	17137 1		CADR	MONREQ	
1582	REF	3 LAST 355	07,7151	3 2164 0		CAF	PRI031	
1583	REF	15 LAST 477	07,7152	0 2052 1		TC	NOVAC	ENTER EXEC REQUEST FOR MONDO
1584	REF	1	07,7153	17162 1		CADR	MONDO	
1585	REF	45 LAST 456	07,7154	0 2256 1		TC	TASKOVER	
1586	REF	192 LAST 519	07,7155	3 5501 0	KILLMON	CAF	ZERO	ZERO MONSAVE AND TURN KILLER BIT OFF
1587	REF	4 LAST 521	07,7156	5 0625 0		TS	MONSAVE	
1588	REF	4 LAST 522	07,7157	5 0626 0		TS	MONSAVE1	TURN OFF KILL MONITOR BIT.
1589	REF	46 LAST 522	07,7160	0 2256 1		TC	TASKOVER	
1590			07,7161	00144 0	MONDEL	OCT	144	FOR 1 SEC MONITOR INTERVALS
1591	REF	5 LAST 522	07,7162	1 0626 1	MONDO	CCS	MONSAVE1	CALLED BY EXEC
1592			07,7163	0 7167 0		TC	+4	IF KILLER BIT = 0, CONTINUE
1593			07,7164	0 7167 0		TC	+3	IF KILLER BIT = 0, CONTINUE
1594	REF	62 LAST 494	07,7165	0 2124 1		TC	ENDOFJOB	IN CASE TERMINATE CAME SINCE LAST MONREQ
1595	REF	63 LAST 522	07,7166	0 2124 1		TC	ENDOFJOB	IN CASE TERMINATE CAME SINCE LAST MONREQ
1596	REF	1	07,7167	0 3274 0		TC	TSTDSPK	PERFORMS CCS DSPLOCK
1597	REF	1	07,7170	0 7214 1		TC	MONBUSY	NVSUB IS BUSY
1598	REF	2 LAST 521	07,7171	3 7421 1		CAF	LOW6	NVSUB IS AVAILABLE
1599	REF	5 LAST 522	07,7172	7 0625 1		MASK	MONSAVE	
1600	REF	3 LAST 252	07,7173	5 0110 1		TS	NVTEMP	
1601	REF	2 LAST 252	07,7174	0 3121 0		TC	NVSUBMON	PLACE NOUN INTO NOUNREG AND DISPLAY IT
1602	REF	64 LAST 522	07,7175	0 2124 1		TC	ENDOFJOB	IN CASE OF ALARM DURING DISPLAY
1603	REF	1	07,7176	3 7212 1		CAF	MONMASK	
1604	REF	6 LAST 522	07,7177	7 0625 1		MASK	MONSAVE	CHANGE MONITOR VERB TO DISPLAY VERB
1605	REF	3 LAST 515	07,7200	0 3174 0		TC	RIGHT5	
1606	REF	31 LAST 281	07,7201	5 0020 0		TS	CYR	
1607	REF	32 LAST 522	07,7202	3 0020 0		XCH	CYR	
1608	REF	20 LAST 521	07,7203	5 0602 0		TS	VERBREG	

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1609	REF	1		07,7204	3 7213 0	CAF	MONBACK	SET RETURN TO PASTEVB AFTER DATA DISPLAY
1610	REF	5 LAST 522		07,7205	5 0065 1	TS	ENTRET	
1611	REF	24 LAST 521		07,7206	4 4500 1	CS	BIT15	
1612	REF	6 LAST 522		07,7207	7 0626 1	MASK	MONSAVE1	
1613	REF	33 LAST 521		07,7210	5 0624 1	TS	NOUNADD	
1614	REF	2 LAST 497		07,7211	0 6046 0	ENDMONDO TC	TESTNN	
1615	REF	1			3071	SETLOC	ENDFAILF	
1616	REF	1		3071	3 3077 1	PASTEVB CAF	MIDSIX	
1617	REF	7 LAST 522		3072	7 0625 1	MASK	MONSAVE	
1618	REF	4 LAST 522		3073	5 0110 1	TS	NVTEMP	PLACE MONITOR VERB INTO VERBREG AND
1619	REF	3 LAST 522		3074	0 3121 0	TC	NVSUBMON	DISPLAY IT.
1620				3075	0 3076 0	TC	+1	IN CASE OF ALARM DURING DISPLAY
1621	REF	65 LAST 522		3076	0 2124 1	ENDPASTE TC	ENDOFJOB	
1622				3077	07700 1	MIDSIX OCTAL	07700	

1623	REF	1			07,7212	SETLOC	ENDMONDO +1	
1624				07,7212	00700 0	MONMASK OCT	700	
1625	REF	1		07,7213	03071 1	MONBACK ADRES	PASTEVB	
1626	REF	1		07,7214	0 3250 0	MONBUSY TC	RELDSPON	TURN KEY RELEASE LIGHT
1627	REF	66 LAST 523		07,7215	0 2124 1	TC	ENDOFJOB	

R1628 DSPBANK IS USED TO DISPLAY (IN OCTAL) ANY FIXED REGISTER IN BANK.
 R1629 IT IS USED WITH NOUN = MACHINE ADDRESS TO BE SPECIFIED. THE CADR OF THE
 R1630 DESIRED LOCATION IS THEN PUNCHED IN.

1631	REF	7 LAST 511		07,7216	3 3171 0	DSPBANK CAF	R1D1	
1632	REF	29 LAST 514		07,7217	5 0614 1	TS	DSPCOUNT	
1633	REF	34 LAST 523		07,7220	4 0624 0	CS	NOUNADD	
1634	REF	411 LAST 521		07,7221	4 0000 0	CS	A	
1635	REF	3 LAST 278		07,7222	0 5730 0	TC	DATA CALL	
1636	REF	4 LAST 505		07,7223	0 7225 0	TC	DSPOCTWD	
1637	REF	67 LAST 523		07,7224	0 2124 1	TC	ENDOFJOB	

1638	REF	4 LAST 519		06,7241		SETLOC	TESTOFUF +4	
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R1639 DSPDECWD CONVERTS C(MPAC) AND C(MPAC +1) TO A SIGN AND 5 CHAR DECIMAL
 R1640 STARTING IN LOC SPECIFIED IN DSPCOUNT

1641	REF	265 LAST 520		06,7241	3 0001 0	DSPDECWD XCH	Q	USES SHORTMP THROUGHOUT
1642	REF	8 LAST 509		06,7242	5 0106 0	TS	WDRET	
1643	REF	432 LAST 521		06,7243	1 0115 0	CCS	MPAC	

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1644		06,7244	0 7253 1	TC	+7	
1645		06,7245	0 7253 1	TC	+6	
1646	REF 172 LAST 521	06,7246	6 4516 1	AD	ONE	
1647	REF 433 LAST 523	06,7247	5 0115 1	TS	MPAC	
1648	REF 2 LAST 490	06,7250	0 6343 0	TC	-ON	
1649	REF 434 LAST 524	06,7251	4 0116 0	CS	MPAC +1	
1650		06,7252	0 7255 1	TC	+3	
1651	REF 2 LAST 491	06,7253	0 6322 1	TC	+ON	
1652	REF 435 LAST 524	06,7254	3 0116 1	XCH	MPAC +1	
1653	REF 1	06,7255	6 7314 0	AD	DECROUND	
1654	REF 436 LAST 524	06,7256	5 0116 1	TS	MPAC +1	
1655	REF 193 LAST 522	06,7257	3 5501 0	CAF	ZERO	
1656	REF 437 LAST 524	06,7260	6 0115 1	AD	MPAC	
1657	REF 438 LAST 524	06,7261	5 0115 1	TS	MPAC	
1658		06,7262	0 7266 1	TC	+4	
1659	REF 24 LAST 517	06,7263	3 4476 0	CAF	POSMAX	
1660	REF 439 LAST 524	06,7264	5 0115 1	TS	MPAC	
1661	REF 440 LAST 524	06,7265	5 0116 1	TS	MPAC +1	
1662	REF 11 LAST 419	06,7266	3 5502 0	CAF	FOUR	
1663	REF 1	06,7267	5 0076 0	DSPDCWD1 TS	WDCNT	
1664	REF 2 LAST 492	06,7270	3 3232 1	CAF	BINCON	
1665	REF 7 LAST 509	06,7271	0 5416 1	TC	SHORTMP	
1666	REF 441 LAST 524	06,7272	2 0115 0	TRACE1 INDEX	MPAC	
1667	REF 3 LAST 487	06,7273	3 2652 1	CAF	RELTAB	
1668	REF 11 LAST 515	06,7274	7 3220 0	MASK	LOW5	
1669	REF 8 LAST 495	06,7275	5 0111 0	TS	CODE	
1670	REF 194 LAST 524	06,7276	3 5501 0	CAF	ZERO	
1671	REF 442 LAST 524	06,7277	3 0117 0	XCH	MPAC +2	
1672	REF 443 LAST 524	06,7300	3 0116 1	XCH	MPAC +1	
1673	REF 444 LAST 524	06,7301	5 0115 1	TS	MPAC	
1674	REF 30 LAST 523	06,7302	3 0614 1	XCH	DSPCOUNT	
1675	REF 5 LAST 495	06,7303	5 0104 1	TRACE1S TS	COUNT	
1676	REF 412 LAST 523	06,7304	1 0000 0	CCS	A	DECREMENT DSPCOUNT EXCEPT AT +0
1677	REF 31 LAST 524	06,7305	5 0614 1	TS	DSPCOUNT	
1678	REF 5 LAST 495	06,7306	0 7341 0	TC	DSPIN	
1679	REF 2 LAST 524	06,7307	1 0076 1	CCS	WDCNT	
1680	REF 1	06,7310	0 7267 0	TC	DSPDCWD1	
1681	REF 5 LAST 513	06,7311	4 3227 1	CS	VD1	
1682	REF 32 LAST 524	06,7312	5 0614 1	TS	DSPCOUNT	
1683	REF 9 LAST 523	06,7313	0 0106 0	TC	WDRET	
1684		06,7314	02476 0	DECROUND OCT	02476	

R1685 DSP2DEC CONVERTS C(MPAC) AND C(MPAC+1) INTO A SIGN AND 10 CHAR DECIMAL
 R1686 STARTING IN THE LOC SPECIFIED IN DSPCOUNT.

1687	REF 266 LAST 523	06,7315	3 0001 0	DSP2DEC XCH	Q
1688	REF 10 LAST 524	06,7316	5 0106 0	TS	WDRET

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1689	REF 195	LAST 524	06,7317	3 5501 0	CAF	ZERO	
1690	REF 9	LAST 524	06,7320	5 0111 0	TS	CODE	
1691	REF 20	LAST 497	06,7321	3 4473 0	CAF	THREE	
1692	REF 4	LAST 493	06,7322	0 7426 0	TC	11DSPIN	-R2 OFF
1693	REF 12	LAST 524	06,7323	3 5502 0	CAF	FOUR	
1694	REF 5	LAST 525	06,7324	0 7426 0	TC	11DSPIN	+R2 OFF
1695	REF 445	LAST 524	06,7325	1 0115 0	CCS	MPAC	
1696			06,7326	0 7336 0	TC	+8D	
1697			06,7327	0 7336 0	TC	+7	
1698	REF 173	LAST 524	06,7330	6 4516 1	AD	ONE	
1699	REF 446	LAST 525	06,7331	5 0115 1	TS	MPAC	
1700	REF 3	LAST 524	06,7332	0 6343 0	TC	-ON	
1701	REF 447	LAST 525	06,7333	4 0116 0	CS	MPAC +1	
1702	REF 448	LAST 525	06,7334	5 0116 1	TS	MPAC +1	
1703			06,7335	0 7337 1	TC	+2	
1704	REF 3	LAST 524	06,7336	0 6322 1	TC	+ON	
1705	REF 3	LAST 502	06,7337	3 3172 0	CAF	R2D1	
1706	REF 2	LAST 524	06,7340	0 7267 0	TC	DSPDCWD1	

END2DEC

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1707 REF 2 LAST 499 07,7225 SETLOC DSPBANK +7
 R1708 DSPOCTWD DISPLAYS C(A) UPON ENTRY AS A 5 CHAR OCT STARTING IN THE DSP
 R1709 CHAR SPECIFIED IN DSPCOUNT. IT STOPS AFTER 5 CHAR HAVE BEEN DISPLAYED.

1710	REF 19	LAST 521	07,7225	5 0022 1	DSPOCTWD	TS	CYL	
1711	REF 267	LAST 524	07,7226	3 0001 0	XCH	Q		
1712	REF 11	LAST 524	07,7227	5 0106 0	TS	WDRET		
1713	REF 33	LAST 524	07,7230	3 0614 1	XCH	DSPCOUNT		
1714	REF 13	LAST 390	07,7231	6 4501 1	AD	BIT14		TO BLANK SIGNS
1715	REF 34	LAST 525	07,7232	5 0614 1	TS	DSPCOUNT		
1716	REF 13	LAST 525	07,7233	3 5502 0	CAF	FOUR		
1717	REF 3	LAST 524	07,7234	5 0076 0	WDAGAIN	TS	WDCNT	
1718	REF 20	LAST 525	07,7235	4 0022 0	CS	CYL		
1719	REF 21	LAST 525	07,7236	4 0022 0	CS	CYL		
1720	REF 22	LAST 525	07,7237	4 0022 0	CS	CYL		
1721	REF 413	LAST 524	07,7240	4 0000 0	CS	A		
1722	REF 1		07,7241	7 5362 1	MASK	DSPMSK		
1723	REF 414	LAST 525	07,7242	2 0000 0	INDEX	A		
1724	REF 4	LAST 524	07,7243	3 2652 1	CAF	RELTAB		
1725	REF 12	LAST 524	07,7244	7 3220 0	MASK	LOW5		
1726	REF 10	LAST 525	07,7245	5 0111 0	TS	CODE		
1727	REF 35	LAST 525	07,7246	3 0614 1	XCH	DSPCOUNT		
1728	REF 6	LAST 524	07,7247	5 0104 1	TS	COUNT		
1729	REF 415	LAST 525	07,7250	1 0000 0	CCS	A		DECREMENT DSPCOUNT EXCEPT AT +0
1730	REF 36	LAST 525	07,7251	5 0614 1	TS	DSPCOUNT		
1731	REF 20	LAST 517	07,7252	0 5720 1	TC	POSTJUMP		
1732	REF 1		07,7253	15434 0	CADR	DSPOCTIN		
1733	REF 4	LAST 525	07,7254	1 0076 1	OCTBACK	CCS	WDCNT	
1734	REF 1		07,7255	0 7234 0	TC	WDAGAIN		+

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1735	REF	6	LAST	524	07,7256	4	3227	1	DSPLV	CS	VD1	TO BLOCK NUMERICAL CHARACTERS, CLEARS, AND SIGNS AFTER A COMPLETED DISPLAY.
1736	REF	37	LAST	525	07,7257	5	0614	1		TS	DSPCOUNT	
1737	REF	12	LAST	525	07,7260	0	0106	0		TC	WDRET	
1738	REF	11	LAST	493			5362		DSPMSK	=	SEVEN	

R1739 DSP2BIT DISPLAYS C(A) UPON ENTRY AS A 2 CHAR OCT BEGINNING IN THE DSP
 R1740 LOC SPECIFIED IN DSPCOUNT BY PRE CYCLING RIGHT C(A) AND USING THE LOGIC
 R1741 OF THE 5 CHAR OCTAL DISPLAY

1742	REF	33	LAST	522	07,7261	5	0020	0	DSP2BIT	TS	CYR
1743	REF	268	LAST	525	07,7262	3	0001	0		XCH	Q
1744	REF	13	LAST	526	07,7263	5	0106	0		TS	WDRET
1745	REF	174	LAST	525	07,7264	3	4516	1		CAF	ONE
1746	REF	5	LAST	525	07,7265	5	0076	0		TS	WDCNT
1747	REF	34	LAST	526	07,7266	4	0020	1		CS	CYR
1748	REF	35	LAST	526	07,7267	4	0020	1		CS	CYR
1749	REF	36	LAST	526	07,7270	3	0020	0		XCH	CYR
1750	REF	23	LAST	525	07,7271	5	0022	1		TS	CYL
1751	REF	2	LAST	525	07,7272	0	7241	1		TC	WDAGAIN +5

R1752 FOR DSPIN PLACE 0/25 OCT INTO COUNT, 5 BIT RELAY CODE INTO CODE. BOTH
 R1753 ARE DESTROYED. IF BIT14 OF COUNT IS 1, SIGN IS BLANKED WITH LEFT CHAR.
 R1754 FOR DSPIN1 PLACE 0,1 INTO BIT11 OF CODE, 2 INTO COUNT, REL ADDRESS OF
 R1755 DSPTAB ENTRY INTO DSREL.

1756	REF	1			06,7341				SETLOC	END2DEC	+1	
1757	REF	269	LAST	526	06,7341	3	0001	0	DSPIN	XCH	Q	
1758	REF	3	LAST	486	06,7342	5	0112	0		TS	DSEXIT	
1759	REF	13	LAST	525	06,7343	3	3220	1		CAF	LOW5	
1760	REF	7	LAST	525	06,7344	7	0104	0		MASK	COUNT	
1761	REF	24	LAST	514	06,7345	5	0021	1		TS	SR	
1762	REF	25	LAST	526	06,7346	3	0021	1		XCH	SR	
1763	REF	1			06,7347	5	0102	1		TS	DSREL	
1764	REF	20	LAST	368	06,7350	3	4516	1		CAF	BIT1	
1765	REF	8	LAST	526	06,7351	7	0104	0		MASK	COUNT	
1766	REF	416	LAST	525	06,7352	1	0000	0		CCS	A	
1767					06,7353	0	7355	0		TC	+2	LEFT IF COUNT IS ODD
1768	REF	1			06,7354	0	7365	0		TC	DSPIN1 -1	RIGHT IF COUNT IS EVEN
1769	REF	11	LAST	525	06,7355	3	0111	0		XCH	CODE	
1770	REF	1			06,7356	0	3212	0		TC	SLEFT5	DOES NOT USE CYL
1771	REF	12	LAST	526	06,7357	5	0111	0		TS	CODE	
1772	REF	14	LAST	525	06,7360	3	4501	1		CAF	BIT14	
1773	REF	9	LAST	526	06,7361	7	0104	0		MASK	COUNT	
1774	REF	417	LAST	526	06,7362	1	0000	0		CCS	A	

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1775	REF	78	LAST	521	06,7363	3	5503	1	CAF	TWO	BIT14 = 1, BLANK SIGN
1776	REF	175	LAST	526	06,7364	6	4516	1	AD	ONE	BIT14 = 0, LEAVE SIGN ALONE
1777	REF	10	LAST	526	06,7365	5	0104	1	TS	COUNT	+0 INTO COUNT FOR RIGHT
A1778											+1 INTO COUNT FOR LEFT(SIGN LEFT ALONE)
A1779											+3 INTO COUNT FOR LEFT(TO BLANK SIGN)
1780					06,7366	2	0017	0	DSPIN1	INHINT	
1781	REF	2	LAST	526	06,7367	2	0102	0	INDEX	DSREL	
1782	REF	89	LAST	496	06,7370	1	0710	0	CCS	DSPTAB	
1783					06,7371	0	7373	1	TC	+2	IF +
1784	REF	37	LAST	521	06,7372	0	3062	0	TC	CCSHOLE	
1785	REF	176	LAST	527	06,7373	6	4516	1	AD	ONE	IF-
1786	REF	1			06,7374	5	0103	0	TS	DSMAG	
1787	REF	11	LAST	527	06,7375	2	0104	0	INDEX	COUNT	
1788	REF	1			06,7376	7	7422	0	MASK	DSMSK	
1789					06,7377	2	5777	1	EXTEND		
1790	REF	13	LAST	526	06,7400	6	0111	0	SJ	CODE	
1791	REF	418	LAST	526	06,7401	1	0000	0	CCS	A	
1792	REF	1			06,7402	0	7406	1	TC	DFRNT	IF+
1793	REF	38	LAST	527	06,7403	0	3062	0	TC	CCSHOLE	
1794	REF	2	LAST	527	06,7404	0	7406	1	TC	DFRNT	IF-
1795	REF	1			06,7405	0	7420	0	TC	DSLX	IF -0
1796	REF	12	LAST	527	06,7406	2	0104	0	DFRNT	INDEX	
1797	REF	2	LAST	527	06,7407	4	7422	0	CS	DSMSK	MASK WITH 77740,76037, OR 75777
1798	REF	2	LAST	527	06,7410	7	0103	1	MASK	DSMAG	
1799	REF	14	LAST	527	06,7411	6	0111	0	AD	CODE	
1800	REF	419	LAST	527	06,7412	4	0000	0	CS	A	
1801	REF	3	LAST	527	06,7413	2	0102	0	INDEX	DSREL	
1802	REF	90	LAST	527	06,7414	3	0710	1	XCH	DSPTAB	
1803	REF	420	LAST	527	06,7415	1	0000	0	CCS	A	
1804	REF	3	LAST	508	06,7416	0	6640	0	TC	INCNOUT	
1805	REF	39	LAST	527	06,7417	0	3062	0	TC	CCSHOLE	
1806					06,7420	2	0016	1	DSLX	RELINT	
1807	REF	4	LAST	526	06,7421	0	0112	0	TC	DSEXIT	
1808					06,7422		00037	0	DSMSK	OCT	37
1809					06,7423		01740	0		OCT	1740
1810					06,7424		02000	0		OCT	2000
1811					06,7425		03740	1		OCT	3740

R1812 FOR 11DSPIN, PUT REL ADDRESS OF DSPTAB ENTRY INTO A, 1 IN BIT11 OR 0 IN
 R1813 BIT11 OF CODE.

1814	REF	4	LAST	527	06,7426	5	0102	1	11DSPIN	TS	DSREL
1815	REF	79	LAST	527	06,7427	3	5503	1	CAF	TWO	
1816	REF	13	LAST	527	06,7430	5	0104	1	TS	COUNT	
1817	REF	270	LAST	526	06,7431	3	0001	0	XCH	Q	
1818	REF	5	LAST	527	06,7432	5	0112	0	TS	DSEXIT	
1819	REF	2	LAST	526	06,7433	0	7366	0	TC	DSPIN1	

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1820	REF	6	LAST	524	06,7434	0	7341	0	DSPOCTIN	TC	DSPIN	SO DSPOCTWD DOESNT USE SWCALL
1821					06,7435	3	7437	0		CAF	+2	
1822	REF	17	LAST	516	06,7436	0	5723	1		TC	BANKJUMP	
1823	REF	1			06,7437		17254	1	ENDSPOCT	CADR	OCTBACK	

R1824 DSPALARM FINDS TC NVSUBEND IN ENTRET FOR NVSUB INITIATED ROUTINES.
 R1825 ABORT WITH OCT 01501.
 R1826 DSPALARM FINDS TC ENDOFJOB IN ENTRET FOR KEYBOARD INITIATED ROUTINES.
 R1827 DO TC ENTRET.

1828	REF	5	LAST	502	06,7440	3	3147	0	CHARALRM	CAF	ENDINST	ALARMS WHICH MUST DO ENDOFJOBS COME
1829	REF	6	LAST	523	06,7441	5	0065	1		TS	ENTRET	HERE. ALLOWS ENTRET TO BE TEMP ERASABLE
1830	REF	5	LAST	264	06,7442	0	3233	0	DSPALARM	TC	FALTON	TURN ON CHECK FAIL LIGHT.
1831	REF	1			06,7443	4	7447	0		CS	NVSBENDL	
1832	REF	8	LAST	511	06,7444	6	0065	1		AD	ENTEXIT	
1833	REF	421	LAST	527	06,7445	1	0000	0		CC5	A	
1834	REF	9	LAST	528	06,7446	0	0065	1		TC	ENTEXIT	NOT NVSUB INITIATED.
1835	REF	1			06,7447	0	3125	1	NVSBENDL	TC	NVSBEND	
1836	REF	10	LAST	528	06,7450	0	0065	1		TC	ENTEXIT	NOT NVSUB INITIATED.
1837	REF	10	LAST	295	06,7451	0	3044	1		TC	ABORT	NVSUB INITIATED.
1838					06,7452		01501	1		OCT	01501	

1839	REF	22	LAST	517	06,7453	3	4504	1	FLASHON1	CAF	BIT11	GETS HERE THRU FLASHON(STANDARD LEAD IN)
1840	REF	15	LAST	527	06,7454	5	0111	0		TS	CODE	
1841	REF	1			06,7455	3	7464	0		CAF	FLASHLOC	
1842	REF	5	LAST	527	06,7456	5	0102	1		TS	DSREL	
1843	REF	80	LAST	527	06,7457	3	5503	1		CAF	TWO	
1844	REF	14	LAST	527	06,7460	5	0104	1		TS	COUNT	
1845	REF	3	LAST	527	06,7461	0	7366	0		TC	DSPIN1	
1846	REF	196	LAST	525	06,7462	3	5501	0	FLASHOF1	CAF	ZERO	GETS HERE THRU FLASHOFF(STANDARD LEAD IN
1847	REF	2	LAST	486	06,7463	0	7454	0		TC	FLASHON1 +1	
1848					06,7464		00011	1	FLASHLOC	OCT	11	

R1849 MMCHANG USES NOUN DISPLAY UNTIL ENTER. THEN IT USES MODE DISP.
 R1850 IT GOES TO MODROUT WITH THE NEW M M CODE IN A, BUT NOT DISPLAYED IN
 R1851 M M LIGHTS.

1852	REF	2	LAST	503			07,7273		SETLOC	DSP2BIT	+10D	
1853	REF	1			07,7273	0	7306	0	MMCHANG	TC	REQMM	
1854	REF	197	LAST	528	07,7274	3	5501	0		CAF	ZERO	
1855	REF	9	LAST	521	07,7275	3	0603	1		XCH	NOUNREG	
1856	REF	449	LAST	525	07,7276	5	0115	1		TS	MPAC	

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1857	REF	3	LAST	503	07,7277	3	3230	0	CAF	ND1
1858	REF	38	LAST	526	07,7300	5	0614	1	TS	DSPCOUNT
1859	REF	145	LAST	519	07,7301	0	5654	0	TC	BANKCALL
1860	REF	4	LAST	495	07,7302		14621	1	CADR	2BLANK
1861	REF	450	LAST	528	07,7303	3	0115	1	XCH	MPAC
1862	REF	21	LAST	525	07,7304	0	5720	1	TC	POSTJUMP
1863	REF	1			07,7305		10002	1	CADR	MODROUTB

GO THRU STANDARD LOC.

1864	REF	271	LAST	527	07,7306	4	0001	1	REQMM	CS	Q
1865	REF	12	LAST	502	07,7307	5	0613	0		TS	REQRET
1866	REF	4	LAST	529	07,7310	3	3230	0		CAF	ND1
1867	REF	39	LAST	529	07,7311	5	0614	1		TS	DSPCOUNT
1868	REF	198	LAST	528	07,7312	3	5501	0		CAF	ZERO
1869	REF	10	LAST	528	07,7313	5	0603	1		TS	NOUNREG
1870	REF	146	LAST	529	07,7314	0	5654	0		TC	BANKCALL
1871	REF	5	LAST	529	07,7315		14621	1		CADR	2BLANK
1872	REF	147	LAST	529	07,7316	0	5654	0		TC	BANKCALL
1873	REF	11	LAST	502	07,7317		14000	1		CADR	FLASHON
1874	REF	11	LAST	528	07,7320	0	0065	1		TC	ENTEXIT

R1875 VBRQEXEC ENTERS REQUEST TO EXEC FOR ANY ADDRESS WITH ANY PRIORITY.
 R1876 IT DOES ENDOFJOB AFTER ENTERING REQUEST. ASSUMES PRI0 PRELOADED INTO
 R1877 BITS 10-14 OF FIRST REGISTER OF TEMP AREA, WITH BIT1=0 FOR NOVAC, BIT1
 R1878 =1 FOR FINDVAC). THE VERB IS USED WITH NOUN=MACHINE ADDRESS TO BE
 R1879 SPECIFIED. CADR JOBADDR IS PUNCHED IN. DISPLAY SYST IS RELEASED.

1880	REF	6	LAST	528	07,7321	3	3147	0	VBRQEXEC	CAF	ENDINST
1881	REF	1			07,7322	5	0075	0		TS	PROGREG +2
1882	REF	2	LAST	499	07,7323	0	3323	0		TC	RELDSP
1883	REF	21	LAST	526	07,7324	3	4516	1		CAF	BIT1
1884	REF	43	LAST	434	07,7325	7	0616	1		MASK	DSPTM1
1885	REF	422	LAST	528	07,7326	1	0000	0		CCS	A
1886	REF	1			07,7327	0	7340	1		TC	SETVAC
1887	REF	1			07,7330	3	3223	1		CAF	TCNOVAC
1888	REF	2	LAST	529	07,7331	5	0073	0	REQEX1	TS	PROGREG
1889	REF	35	LAST	523	07,7332	3	0624	1		XCH	NOUNADD
1890	REF	3	LAST	529	07,7333	5	0074	1		TS	PROGREG +1
1891	REF	22	LAST	529	07,7334	4	4516	0		CS	BIT1
1892	REF	44	LAST	529	07,7335	7	0616	1		MASK	DSPTM1
1893					07,7336	2	0017	0		INHINT	
1894	REF	4	LAST	529	07,7337	0	0073	0		TC	PROGREG
1895	REF	2	LAST	138	07,7340	3	3226	1	SETVAC	CAF	TCFINDVC
1896	REF	1			07,7341	0	7331	1		TC	REQEX1

IF BIT1 =1, FINDVAC
 IF BIT1 =0, NOVAC
 TC NOVAC OR TC FINDVAC INTO PROGREG

CADR JOBADDR INTO PROGREG +1

R1897 VBRQWAIT ENTERS REQUEST TO WAITLIST FOR ANY ADDRESS WITH ANY DELAY.

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R1898 IT DOES ENDOFJOB AFTER ENTERING REQUEST. ASSUMES DELAY PRELOADED IN FIRST
 R1899 REGISTER OF TEMP AREA. THE VERB IS USED WITH NOUN= MACHINE ADDRESS TO
 R1900 BE SPECIFIED. CADR TASKADDR IS PUNCHED IN. DISPLAY SYST IS RELEASED.

1901	REF	7	LAST	529	07,7342	3	3147	0	VBRQWAIT	CAF	ENDINST	
1902	REF	5	LAST	529	07,7343	5	0075	0		TS	PROGREG +2	TC ENDOFJOB INTO PROGREG+2
1903	REF	3	LAST	529	07,7344	0	3323	0		TC	RELDSP	
1904	REF	2	LAST	135	07,7345	3	3224	0		CAF	TCWAIT	
1905	REF	6	LAST	530	07,7346	5	0073	0		TS	PROGREG	TC WAITLIST INTO PROGREG
1906	REF	36	LAST	529	07,7347	3	0624	1		XCH	NOUNADD	
1907	REF	7	LAST	530	07,7350	5	0074	1		TS	PROGREG +1	CADR TASKADDR INTO PROGREG+1
1908					07,7351	2	0017	0		INHINT		
1909	REF	45	LAST	529	07,7352	3	0616	0		XCH	DSPTM1	DELTA T IN A
1910	REF	8	LAST	530	07,7353	0	0073	0	ENDRQWT	TC	PROGREG	

1911	REF	2	LAST	528					06,7465			
1912	REF	177	LAST	527	06,7465	3	4516	1	VBPROC	CAF	FLASHLOC +1	PROCEED WITHOUT DATA
1913	REF	2	LAST	513	06,7466	5	0632	0		TS	LOADSTAT	
1914	REF	4	LAST	530	06,7467	0	3323	0		TC	RELDSP	
1915	REF	3	LAST	497	06,7470	0	6003	1		TC	FLASHOFF	
1916	REF	2	LAST	514	06,7471	0	7600	0		TC	RECALTST	SEE IF THERE IS ANY RECALL FROM ENDIDLE

1917	REF	1			06,7472	0	3127	0	VBTERM	TC	KILMONON	TURN ON KILL MONITOR BIT
1918	REF	178	LAST	530	06,7473	4	4516	0		CS	ONE	
1919	REF	2	LAST	499	06,7474	0	7466	1		TC	VBPROC +1	TERM VERB SETS LOADSTAT NEG

R1920 FLASH IS TURNED OFF ONLY BY PROCEED WITHOUT DATA, TERMINATE, END OF LOAD

R1921 VBRELDSP TURNS OFF RELEASE DISPLAY SYSTEM LIGHT(AND SEARCHES LIST ONLY
 R1922 IF THIS LIGHT WAS TURNED ON BY NVSUBUSY), AND TURNS OFF UPACT LIGHT.

1923	REF	199	LAST	529	06,7475	3	5501	0	VBRELDSP	CAF	ZERO	RELEASE DISPLAY SYST
1924	REF	16	LAST	528	06,7476	5	0111	0		TS	CODE	TURN OFF UPACT LIGHT
1925	REF	12	LAST	526	06,7477	3	5362	0		CAF	SEVEN	
1926	REF	6	LAST	525	06,7500	0	7426	0		TC	11DSPIN	
1927	REF	5	LAST	530	06,7501	0	3323	0		TC	RELDSP	SEARCHES LIST
1928	REF	68	LAST	523	06,7502	0	2124	1		TC	ENDOFJOB	

R1929 BUMP SHIFTS WORD DISPLAYED IN R2 TO R3, R1 TO R2. IT BLANKS R1.

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1930	REF	10	LAST	512	06,7503	3	4477	1	BUMP	CAF	FIVE	R2D5
1931	REF	40	LAST	529	06,7504	5	0614	1		TS	DSPCOUNT	
1932	REF	15	LAST	528	06,7505	5	0104	1		TS	COUNT	
1933	REF	179	LAST	530	06,7506	3	4516	1		CAF	ONE	SHIFT DATA OF R2 TO R3, R1 TO R2
1934	REF	16	LAST	531	06,7507	7	0104	0		MASK	COUNT	
1935	REF	17	LAST	531	06,7510	3	0104	1		XCH	COUNT	+0 INTO COUNT IF EVEN (RIGHT)
1936	REF	26	LAST	526	06,7511	5	0021	1		TS	SR	+1 INTO COUNT IF ODD (LEFT)
1937	REF	27	LAST	531	06,7512	3	0021	1		XCH	SR	DSREL IN A
1938	REF	423	LAST	529	06,7513	2	0000	0		INDEX	A	
1939	REF	91	LAST	527	06,7514	1	0710	0		CCS	DSPTAB	
1940					06,7515	0	7517	0		TC	+2	
1941	REF	40	LAST	527	06,7516	0	3062	0		TC	CCSHOLE	
1942	REF	180	LAST	531	06,7517	6	4516	1		AD	ONE	DSMAG IN A
1943	REF	18	LAST	531	06,7520	2	0104	0		INDEX	COUNT	
1944	REF	3	LAST	527	06,7521	7	7422	0		MASK	DSMSK	
1945	REF	19	LAST	531	06,7522	2	0104	0		INDEX	COUNT	
1946					06,7523	0	7524	0		TC	+1	
1947					06,7524	0	7526	1		TC	+2	EVEN(RIGHT) OK
1948	REF	4	LAST	522	06,7525	0	3174	0		TC	RIGHT5	ODD(LEFT) SHIFT RIGHT
1949	REF	17	LAST	530	06,7526	5	0111	0		TS	CODE	
1950	REF	11	LAST	531	06,7527	4	4477	0		CS	FIVE	
1951	REF	41	LAST	531	06,7530	6	0614	1		AD	DSPCOUNT	DSPCOUNT-5
1952	REF	424	LAST	531	06,7531	1	0000	0		CCS	A	TO PREVENT -0
1953	REF	181	LAST	531	06,7532	6	4516	1		AD	ONE	
1954					06,7533	0	7535	0		TC	+2	
1955	REF	41	LAST	531	06,7534	0	3062	0		TC	CCSHOLE	
1956	REF	20	LAST	531	06,7535	5	0104	1		TS	COUNT	
1957	REF	7	LAST	528	06,7536	0	7341	0		TC	DSPIN	CODE ALREADY IN CODE
1958	REF	42	LAST	531	06,7537	4	0614	0		CS	DSPCOUNT	
1959	REF	8	LAST	523	06,7540	6	3171	0		AD	R1D1	OCT 16
1960	REF	425	LAST	531	06,7541	1	0000	0		CCS	A	
1961	REF	43	LAST	531	06,7542	3	0614	1		XCH	DSPCOUNT	+, DSPCOUNT L/ OCT 16
1962	REF	182	LAST	531	06,7543	6	4516	1		AD	ONE	INCREMENT DSPCOUNT
1963	REF	2	LAST	499	06,7544	0	7504	1		TC	BUMP +1	
1964	REF	200	LAST	530	06,7545	3	5501	0	SWSGN	CAF	ZERO	-0, DSPCOUNT= OCT 16. DO SIGN SHIFT
1965	REF	44	LAST	531	06,7546	5	0614	1		TS	DSPCOUNT	
1966	REF	1			06,7547	6	7576	1		AD	SWTAB +2	OCT 3
1967	REF	426	LAST	531	06,7550	2	0000	0		INDEX	A	PICKUP ORDER , DSREL=3,4,5,6.
1968	REF	92	LAST	531	06,7551	1	0710	0		CCS	DSPTAB	(-R2,+R2,-R1,+R1)
1969					06,7552	0	7554	1		TC	+2	
1970	REF	42	LAST	531	06,7553	0	3062	0		TC	CCSHOLE	
1971	REF	183	LAST	531	06,7554	6	4516	1		AD	ONE	
1972	REF	23	LAST	528	06,7555	7	4504	0		MASK	BIT11	
1973	REF	18	LAST	531	06,7556	5	0111	0		TS	CODE	
1974	REF	45	LAST	531	06,7557	2	0614	0		INDEX	DSPCOUNT	
1975	REF	2	LAST	531	06,7560	3	7574	0		CAF	SWTAB	PUT AWAY ORDER, DSREL= 0,1,3,4.
1976	REF	7	LAST	530	06,7561	0	7426	0		TC	11DSPIN	(-R3,+R3,-R2,+R2.)
1977	REF	46	LAST	531	06,7562	4	0614	0		CS	DSPCOUNT	
1978	REF	3	LAST	531	06,7563	6	7576	1		AD	SWTAB +2	OCT 3

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1979	REF 427 LAST 531	06,7564	1 0000 0	CCS	A	
1980	REF 47 LAST 531	06,7565	3 0614 1	XCH	DSPCOUNT	+, DSPCOUNT L/ 3
1981	REF 184 LAST 531	06,7566	6 4516 1	AD	ONE	INCREMENT DSPCOUNT
1982	REF 1	06,7567	0 7546 1	TC	SWSGN +1	
1983	REF 9 LAST 531	06,7570	3 3171 0	CAF	R1D1	-0, DSPCOUNT = 3
1984	REF 48 LAST 532	06,7571	5 0614 1	TS	DSPCOUNT	
1985	REF 3 LAST 502	06,7572	0 6554 0	TC	5BLANK	BLANKS R1
1986	REF 12 LAST 529	06,7573	0 0065 1	TC	ENTEXIT	
1987		06,7574	00000 1	SWTAB	OCT 0	-R3
1988		06,7575	00001 0		OCT 1	+R3
1989		06,7576	00003 1		OCT 3	-R2
1990		06,7577	00004 0		OCT 4	+R2

R1991 NVSUB IS USED FOR SUB ROUTINE CALLS FROM WITHIN COMPUTER. IT CAN BE
 R1992 USED TO DO ANY THING THE KEYBOARD CAN CALL. PLACE ...VVVVVVNNNNNN
 R1993 INTO A. V-S ARE 6 BIT VERB CODE. N-S , 6 BIT NOUN CODE.

R1994 NVSUB CAN BE USED WITH MACH ADDR TO BE SPEC BY PLACING THE ADDRESS IN
 R1995 MPAC+2 BEFORE THE STANDARD NVSUB CALL.

R1996 NVSUB RETURNS TO 2+ CALLING LOC AFTER PERFORMING TASK, IF DISPLAY
 R1997 SYSTEM IS AVAILABLE. THE NEW NOUN AND VERB CODES ARE DISPLAYED.
 R1998 IF V:S =0, THE NEW NOUN CODE IS DISPLAYED ONLY(RETURN WITH NO FURTHER
 R1999 ACTION). IF N-S =0, THE NEW VERB CODE IS DISPLAYED ONLY(RETURN WITH NO
 R2000 FURTHER ACTION).

R2001 IT RETURNS TO 1+ CALLING LOC WITHOUT PERFORMING TASK, IF DISPLAY
 R2002 SYSTEM IS BLOCKED (NOTHING IS DISPLAYED IN THIS CASE).
 R2003 IT DOES TC ABORT (WITH OCT 01501) IF IT ENCOUNTERS A DISPLAY PROGRAM
 R2004 ALARM CONDITION BEFORE RETURN TO CALLER.

R2005 THE DISPLAY SYSTEM IS BLOCKED BY THE DEPRESSION OF ANY
 R2006 KEY, EXCEPT ERROR LIGHT RESET. ALSO BY ENDIDLE.
 R2007 IT IS RELEASED BY SPECIAL VERB = RELEASE DISPLAY, ALL GO TO VERBS,
 R2008 PROCEED WITHOUT DATA, TERMINATE, INITIALIZE EXECUTIVE,
 R2009 RECALL PART OF RECALST IF ENDIDLE WAS USED,
 R2010 IN RECALST IF NVSUB INITIATED LOAD AND ENDIDLE WAS NOT USED,
 R2011 VB = REQUEST EXECUTIVE, VB = REQUEST WAITLIST,
 R2012 MONITOR SET UP.

R2013 A NVSUB CALL THAT PASSES DSPLOCK ENDS OLD MONITOR.

R2014 DSPLOCK IS THE INTERLOCK FOR USE OF KEYBOARD AND DISPLAY SYSTEM WHICH
 R2015 LOCKS OUT INTERNAL USE WHENEVER THERE IS EXTERNAL KEYBOARD ACTION.

R2016 NVSUB IN F/F PLACES 2 + CALLING CADR INTO NVSBCADR, TC NVSUBEND INTO
 R2017 ENTRET. IT WILL HANDLE A CALL FROM F/F OK, BUT WILL NOT RESTORE BANKREG

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R2018 TO ITS ORIGINAL CONTENTS.

2019	REF	2	LAST	523		3100			SETLOC	MIDSIX	+1	
2020	REF	5	LAST	523		3100	5	0110	1	NVSUB	TS	NVTEMP
2021	REF	23	LAST	498		3101	3	4513	1		CAF	BIT4
2022	REF	3	LAST	492		3102	7	0645	1		MASK	DSPLOCK
2023	REF	428	LAST	532		3103	1	0000	0		CCS	A
2024	REF	272	LAST	529		3104	0	0001	0		TC	Q
2025	REF	273	LAST	533		3105	3	0001	0		XCH	Q
2026	REF	185	LAST	532		3106	6	4516	1		AD	ONE
2027	REF	11	LAST	291		3107	5	0071	1		TS	TEMQS
2028	REF	2	LAST	530		3110	0	3127	0		TC	KILMONON
2029	REF	1				3111	3	3120	1	NVSUBCOM	CAF	NVSUBANK
2030	REF	45	LAST	292		3112	3	0015	0		XCH	BANKREG
2031	REF	9	LAST	291		3113	5	0072	1		TS	BANKTEM
2032	REF	14	LAST	455		3114	0	5706	0		TC	MAKECADR
2033	REF	90	LAST	291		3115	3	0062	0		XCH	ADDRWD
2034	REF	1				3116	5	0631	0		TS	NVSBCADR
2035	REF	1				3117	0	6000	1		TC	NVSUBB
2036	REF	2	LAST	497		3120		17354	0	NVSUBANK	CADR	NVSUB1
												GO TO NVSUB1 THRU STANDARD LOC BANK NUMB OF NVSUB1
2037	REF	274	LAST	533		3121	3	0001	0	NVSUBMON	XCH	Q
2038	REF	186	LAST	533		3122	6	4516	1		AD	ONE
2039	REF	12	LAST	533		3123	5	0071	1		TS	TEMQS
2040	REF	1				3124	0	3111	0		TC	NVSUBCOM
												MONDO COMES HERE
2041	REF	2	LAST	533		3125	3	0631	0	NVSUBEND	XCH	NVSBCADR
2042	REF	12	LAST	513		3126	0	5662	0		TC	SWCALL
2043	REF	1						07,7354			SETLOC	ENDRWGT +1
2044	REF	1				07,7354	3	7373	1	NVSUB1	CAF	ENTSET
2045	REF	7	LAST	528		07,7355	5	0065	1		TS	ENTRET
2046	REF	3	LAST	522		07,7356	3	7421	1		CAF	LOW6
2047	REF	6	LAST	533		07,7357	7	0110	0		MASK	NVTEMP
2048	REF	451	LAST	529		07,7360	5	0115	1		TS	MPAC
2049	REF	1				07,7361	3	7422	1		CAF	MID6
2050	REF	7	LAST	533		07,7362	7	0110	0		MASK	NVTEMP
2051	REF	5	LAST	531		07,7363	0	3174	0		TC	RIGHT5
2052	REF	37	LAST	526		07,7364	5	0020	0		TS	CYR
2053	REF	38	LAST	533		07,7365	3	0020	0		XCH	CYR
2054	REF	452	LAST	533		07,7366	5	0116	1		TS	MPAC +1
2055	REF	453	LAST	533		07,7367	1	0115	0		CCS	MPAC
2056						07,7370	0	7374	0		TC	+4
2057	REF	454	LAST	533		07,7371	3	0116	1		XCH	MPAC +1
2058	REF	7	LAST	512		07,7372	0	6345	0		TC	UPDATVB -1
												TEMP STORAGE TEST NOUN IF NOUN NOT +0, GO ON IF NOUN = +0, DISPLAY VERB . THEN RETURN

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2059	REF	2	LAST	528	07,7373	0	3125	1	ENTSET	TC	NVSUBEND		
2060	REF	455	LAST	533	07,7374	1	0116	0		CCS	MPAC	+1	TEST VERB
2061					07,7375	0	7401	0		TC	+4		IF VERB NOT +0, GO ON
2062	REF	456	LAST	534	07,7376	3	0115	1		XCH	MPAC		
2063	REF	1			07,7377	0	6326	0		TC	UPDATNN	-1	IF VERB = +0, DISPLAY NOUN. THEN RETURN
2064	REF	3	LAST	534	07,7400	0	3125	1		TC	NVSUBEND		
2065	REF	457	LAST	534	07,7401	3	0116	1		XCH	MPAC	+1	
2066	REF	8	LAST	533	07,7402	0	6345	0		TC	UPDATVB	-1	IF BOTH NOUN AND VERB NOT +0, DISPLAY
2067	REF	458	LAST	534	07,7403	3	0115	1		XCH	MPAC		BOTH AND GO TO ENTPAS0
2068	REF	2	LAST	534	07,7404	0	6326	0		TC	UPDATNN	-1	
2069	REF	5	LAST	506	07,7405	1	0054	1		CCS	NNADTEM		NOUN TABLES WERE READ IN UPDATNN.
2070					07,7406	0	7411	1		TC	+3		NORMAL
2071	REF	13	LAST	514	07,7407	0	6356	1		TC	GODSPALM		NOUN NOT IN USE
2072	REF	1			07,7410	0	7416	0		TC	MATBSUB		
2073	REF	201	LAST	531	07,7411	3	5501	0	NVSUB2	CAF	ZERO		
2074	REF	3	LAST	530	07,7412	5	0632	0		TS	LOADSTAT		SET FOR WAITING FOR DATA CONDITION
2075	REF	13	LAST	513	07,7413	5	0633	1		TS	CLPASS		
20751	REF	13	LAST	529	07,7414	5	0613	0		TS	REQRET		SET REQRET FOR PASS 0.
2076	REF	3	LAST	497	07,7415	0	6035	1		TC	ENTPAS0		
2077	REF	459	LAST	534	07,7416	3	0117	0	MATBSUB	XCH	MPAC	+2	NVSUB CALL LEFT ADDRES FOR MATBS IN
2078	REF	37	LAST	530	07,7417	5	0624	1		TS	NOUNADD		MPAC+2.
2079	REF	1			07,7420	0	7411	1		TC	NVSUB2		

2080					07,7421	00077	1	LOW6	OCT	77
2081					07,7422	07700	1	MID6	OCT	7700

2082	REF	4	LAST	534			3127		SETLOC	NVSUBEND	+2		
2083	REF	25	LAST	523	3127	4	4500	1	KILMONON	CS	BIT15		FORCE BIT 15 OF MONSAVE1 TO 1.
2084					3130	2	0017	0		INHINT			THIS IS THE KILL MONITOR BIT.
2085	REF	7	LAST	523	3131	7	0626	1		MASK	MONSAVE1		
2086	REF	26	LAST	534	3132	6	4500	0		AD	BIT15		
2087	REF	8	LAST	534	3133	5	0626	0		TS	MONSAVE1		
2088					3134	2	0016	1		RELINT			
2089	REF	275	LAST	533	3135	0	0001	0		TC	Q		

R2090 LOADSTAT +0 INACTIVE(WAITING FOR DATA). SET BY NV5JB
 R2091 +1 PROCEED NO DATA. SET BY SPECIAL VERB
 R2092 -1 TERMINATE SET BY SPECIAL VERB
 R2093 -0 DATA IN SET BY END OF LOAD ROUTINE

R2094 L TC ENDIDLE (FIXED FIXED)
 R2095 ROUTINES THAT REQUEST LOADS THROUGH NVSUB SHOULD USE ENDIDLE WHILE
 R2096 WAITING FOR THE DATA TO BE LOADED. ENDIDLE PUTS CURRENT JOB TO SLEEP.

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R2097 RECALIST TESTS LOADSTAT AND WAKES JOB UP TO,

R2098 L+1 FOR TERMINATE

R2099 L+2 FOR PROCEED WITHOUT DATA

R2100 L+3 FOR DATA IN

R2101 IT DOES NOTHING IF LOADSTAT INDICATES WAITING FOR DATA.

2102 REF 276 LAST 534 3136 3 0001 0 ENDIDLE XCH Q NOVAC ROUTINES ENTER HERE

2103 REF 13 LAST 533 3137 5 0071 1 TS TEMQS

2104 REF 46 LAST 533 3140 3 0015 0 XCH BANKREG

2105 REF 10 LAST 533 3141 5 0072 1 TS BANKTEM

2106 REF 15 LAST 533 3142 0 5706 0 TC MAKECADR

2107 REF 2 LAST 486 3143 0 3265 0 TC DSPLOCK1 MAKE DSPLOCK BUSY (BIT4 OF STATE)

2108 REF 91 LAST 533 3144 3 0062 0 XCH ADDRWD

2109 REF 3 LAST 502 3145 5 0627 1 TS CADRSTOR

2110 REF 18 LAST 456 3146 0 2127 1 TC JOBSLEEP

2111 REF 69 LAST 530 3147 0 2124 1 ENDINST TC ENDOFJOB

2112 3150 05777 0 BNKCON OCT 5777

R2113 JAMTERM ALLOWS PROGRAMS TO PERFORM THE TERMINATE FUNCTION.

R2114 IT DOES ENDOFJOB.

2115 REF 1 3151 3 3554 0 JAMTERM CAF TWENTY8 LEAVE ENTER AT PASS 0

2116 REF 14 LAST 534 3152 5 0613 0 TS REQRET

2117 REF 148 LAST 529 3153 0 5654 0 TC BANKCALL

2118 REF 9 LAST 534 3154 16345 1 CADR UPDATVB -1 DISPLAY VB 34

2119 REF 22 LAST 529 3155 0 5720 1 TC POSTJUMP

2120 REF 2 LAST 500 3156 15472 1 CADR VBTERM

R2121 DATAWAIT IS AN ALTERNATIVE TO ENDIDLE. IT RETURNS IMMEDIATELY IF
 R2122 LOADSTAT INDICATES THAT DATA IS ALREADY IN, OR PROCEED OR TERMINATE HAS
 R2123 BEEN EXECUTED. RETURN FORMAT IS SAME AS FOR ENDIDLE.
 R2124 DATAWAIT SHOULD BE USED ONLY AFTER REQUESTING A LOAD VERB.

2125 REF 277 LAST 535 3157 3 0001 0 DATAWAIT XCH Q
 2126 REF 14 LAST 535 3160 5 0071 1 TS TEMQS
 2127 REF 4 LAST 534 3161 1 0632 1 CCS LOADSTAT
 2128 REF 1 3162 0 3167 1 TC DATWAIT1 PROCEED. RETURN TO L+2.
 2129 REF 26 LAST 428 3163 0 3140 1 TC ENDIDLE +2 STILL WAITING. GO TO SLEEP.
 2130 REF 15 LAST 535 3164 0 0071 1 TC TEMQS TERMINATE. RETURN TO L+1.
 2131 REF 16 LAST 535 3165 2 0071 0 INDEX TEMQS DATA IN. RETURN TO L+3.
 2132 3166 0 0002 0 TC 2
 2133 REF 17 LAST 535 3167 2 0071 0 DATWAIT1 INDEX TEMQS RETURN TO L+2

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2134 3170 0 0001 0 TC 1

R2135 DATAWAIT DOES NOT RELEASE DISPLAY SYST. IT IS RELEASED AT END OF NVSUB
 R2136 INITIATED LOAD, IF ENDIDLE WAS NOT USED.

2137 REF 2 LAST 533 07,7423 SETLOC MID6 +1
 R2138 DSPMM PLACE MAJOR MODE CODE INTO MODREG

2139	REF	1		07,7423	3 3231 1	DSPMM1	CAF	MD1	GETS HERE THRU DSPMM (STANDARD LEAD IN)
2140	REF	49	LAST 532	07,7424	3 0614 1		XCH	DSPCOUNT	SAVE DSPCOUNT
2141	REF	1		07,7425	5 0107 1		TS	DSPMMTEM	
2142	REF	12	LAST 261	07,7426	4 0612 0		CS	MODREG	
2143	REF	429	LAST 533	07,7427	4 0000 0		CS	A	
2144	REF	3	LAST 528	07,7430	0 7261 0		TC	DSP2BIT	
2145	REF	2	LAST 536	07,7431	3 0107 1		XCH	DSPMMTEM	RESTORE DSPCOUNT
2146	REF	50	LAST 536	07,7432	5 0614 1		TS	DSPCOUNT	
2147	REF	5	LAST 503	07,7433	0 0063 1	ENDSPMM1	TC	UPDATRET	

R2148 RECALYST IS ENTERED DIRECTLY AFTER DATA IS
 R2149 LOADED, TERMINATE VERB IS EXECUTED, OR THE PROCEED WITHOUT DATA VERB IS
 R2150 EXECUTED. IT WAKES UP JOB THAT DID TC ENDIDLE.

R2151 IF NVSUB INITIATED LOAD, AND ENDIDLE WAS NOT USED, THEN IT RELEASES
 R2152 DISPLAY SYST. (NEEDED FOR DATAWAIT)

2153 REF 4 LAST 531 06,7600 SETLOC SWTAB +4

2154	REF	4	LAST 535	06,7600	1 0627 0	RECALYST	CCS	CADRSTOR	
2155	REF	1		06,7601	0 7606 0		TC	RECAL1	
2156	REF	70	LAST 535	06,7602	0 2124 1		TC	ENDOFJOB	NORMAL EXIT IF KEYBOARD INITIATED
2157	REF	2	LAST 536	06,7603	0 7606 0		TC	RECAL1	
2158	REF	5	LAST 536	06,7604	5 0627 1		TS	CADRSTOR	-0. CONCLUSION OF NVSUB INITIATED LOAD.
2159	REF	1		06,7605	0 7624 0		TC	RECAL3	+0 INTO CADRSTOR, RELEASE DISPLAY, AND ENDOFJOB. NEEDED FOR DATAWAIT.
A2160									
2161	REF	202	LAST 534	06,7606	3 5501 0	RECAL1	CAF	ZERO	
2162	REF	6	LAST 536	06,7607	3 0627 1		XCH	CADRSTOR	
2163				06,7610	2 0017 0			INHINT	
2164	REF	16	LAST 456	06,7611	0 2060 0		TC	JOBWAKE	
2165	REF	5	LAST 535	06,7612	1 0632 1		CCS	LOADSTAT	
2166	REF	1		06,7613	0 7630 0		TC	DOPROC	+ PROCEED WITHOUT DATA
2167	REF	71	LAST 536	06,7614	0 2124 1		TC	ENDOFJOB	PATHOLOGICAL CASE EXIT
2168	REF	1		06,7615	0 7626 1		TC	DOTERM	- TERMINATE
2169	REF	81	LAST 528	06,7616	4 5503 0		CS	TWO	
2170	REF	23	LAST 477	06,7617	2 0601 1	RECAL2	INDEX	LOCCTR	
2171	REF	29	LAST 385	06,7620	6 0120 1		AD	LOC	LOC IS - FOR BASIC JOBS
2172	REF	24	LAST 536	06,7621	2 0601 1		INDEX	LOCCTR	

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2173	REF	30	LAST	536	06,7622	5	0120	1	TS	LOC	
2174					06,7623	2	0016	1	RELINT		
2175	REF	2	LAST	521	06,7624	0	3356	1	TC	RELDSP1	DOES NOT SEARCH LIST
2176	REF	72	LAST	536	06,7625	0	2124	1	TC	ENDOFJOB	
2177	REF	203	LAST	536	06,7626	3	5501	0	DOTERM	CAF	ZERO
2178	REF	1			06,7627	0	7617	0	TC	RECAL2	
2179	REF	187	LAST	533	06,7630	4	4516	0	DOPROC	CS	ONE
2180	REF	2	LAST	537	06,7631	0	7617	0	TC	RECAL2	

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P2182 THE FOLLOWING REFERS TO THE NOUN TABLES

2183 REF 2 LAST 497 07,7431 SETLOC DSPMM1 +6

R2184 COMPONENT CODE NUMBER INTERPRETATION

R2185 00000 1 COMPONENT
 R2186 00001 2 COMPONENT (EACH S P)
 R2187 00010 3 COMPONENT (EACH SP)

R2188 SF ROUTINE CODE NUMBER INTERPRETATION

R2189 00000 OCTAL ONLY
 R2190 00001 STRAIGHT FRACTIONAL
 R2191 00010 DEGREES (XXX.XX)
 R2192 00011 ARITHMETIC SF
 R2193 00100 ARITH DP1 OUT(MULT BY 2/14 AT END) IN(STRAIGHT)
 R2194 00101 ARITH DP2 OUT(STRAIGHT) IN(SL 7 AT END)
 R2195 00110 OPTICS DEGREES(XX.XXX MAX 89.999) OR (XXX.XX MAX 179.99)
 R2196 00111 ARITH DP3 OUT (SL 7 AT END) IN (STRAIGHT)
 R2197 END OF SF ROUTINE CODE NUMBERS

R2198 SF CONSTANT CODE NUMBER INTERPRETATION

R2199 00000 WHOLE
 R2200 00000 TIME SEC(XXX.XX) SAME AS WHOLE (ARITH DP1)
 R2201 00001 TIME HOURS(XXX.XX) USE ARITH DP2
 R2202 00010 DEGREES
 R2203 00010 OPTICS DEGREES
 R2204 00011 GYRO DEGREES(XX.XXX) USE ARITH DP1
 R2205 00100 GYRO BIAS DRIFT .BBXXXXX MILLIRAD/SEC
 R2206 00101 GYRO AXIS ACCEL. DRIFT
 R2207 .BBXXXXX (MILLIRAD/SEC) / (CM/SEC SEC)
 R2208 00110 PIPA BIAS X.XXXX CM/SEC SEC
 R2209 00111 PIPA SCALE FACTOR ERROR
 R2210 XXXXX. PARTS/MILLION
 R2211 01000 POSITION(XXXX.X KILOMETERS) USE ARITHDP3
 R2212 01001 VELOCITY(XXXX.X METERS/SEC) USE ARITHDP2
 R2213 01010 TIME HOURS(XXX.XX) WEEKS INSIDE (ARITHDP2)
 R2214 01011 ELEVATION DEGREES(89.999MAX) USE ARITH
 R22141 01100 VG FOR 501 (XXXX.X MET/SEC) USE ARITH
 R2215 END OF SF CONSTANT CODE NUMBERS

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R2216 FOR GREATER THAN SINGLE PRECISION SCALES, PUT ADDRESS OF MAJOR PART INTO
R2217 NOUN TABLES.
R2218 OCTAL LOADS PLACE +0 INTO MAJOR PART, DATA INTO MINOR PART.
R2219 OCTAL DISPLAYS SHOW MINOR PART ONLY.
R2220 TO GET AT BOTH MAJOR AND MINOR PARTS (IN OCTAL), USE NOUN 01.

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R2221 THE FOLLOWING ROUTINES ARE FOR READING THE NOUN TABLES AND THE SF TABLES
 R2222 (WHICH ARE IN A SEPARATE BANK FROM THE REST OF PINBALL). THESE READING
 R2223 ROUTINES ARE IN THE SAME BANK AS THE TABLES. THEY ARE CALLED BY SWCALL.

R2224 LODNNTAB LOADS NNADTEM WITH THE NNADTAB ENTRY, NNTYPTM WITH THE
 R2225 NNTYPTAB ENTRY. IF THE NOJN IS MIXED, IDAD1TEM IS LOADED WITH THE FIRST
 R2226 IDADDTAB ENTRY, IDAD2TEM THE SECOND IDADDTAB ENTRY, IDAD3TEM THE THIRD
 R2227 IDADDTAB ENTRY. MIXBR IS SET FOR MIXED OR NORMAL NOJN.

2228	REF	1			05,7153		SETLOC	ENDEXTVS	
2229	REF	278	LAST 535	05,7153	3 0001 0	LODNNTAB	XCH	Q	
2230	REF	1		05,7154	5 0060 1		TS	IDAD3TEM	SAVE RETURN ADDRESS IN IDAD3TEM
2231	REF	11	LAST 529	05,7155	2 0603 0		INDEX	NOUNREG	
2232	REF	1		05,7156	3 7231 0		CAF	NNADTAB	
2233	REF	6	LAST 534	05,7157	5 0054 0		TS	NNADTEM	
2234	REF	12	LAST 540	05,7160	2 0603 0		INDEX	NOUNREG	
2235	REF	1		05,7161	3 7331 1		CAF	NNTYPTAB	
2236	REF	5	LAST 515	05,7162	5 0055 1		TS	NNTYPTM	
2237	REF	13	LAST 540	05,7163	4 0603 0		CS	NOUNREG	
2238	REF	1		05,7164	6 7167 0		AD	MIXCON	
2239	REF	430	LAST 536	05,7165	1 0000 0		CCS	A	
2240	REF	1		05,7166	0 7210 0		TC	LODNORM	NOUN L/ FIRST MIXED NOUN
2241				05,7167	00055 1	MIXCON	OCT	55	FIRST MIXED NOUN = 55.
2242				05,7170	0 7171 1		TC	+1	
2243	REF	82	LAST 536	05,7171	3 5503 1	LODMIXNN	CAF	TWO	NOUN G/E FIRST MIXED NOUN
2244	REF	12	LAST 519	05,7172	5 0107 1		TS	MIXBR	
2245	REF	18	LAST 515	05,7173	3 4606 0		CAF	LOW10	
2246	REF	7	LAST 540	05,7174	7 0054 1		MASK	NNADTEM	
2247	REF	279	LAST 540	05,7175	5 0001 0		TS	Q	IDADDREL INTO Q
2248	REF	431	LAST 540	05,7176	2 0000 0		INDEX	A	
2249	REF	1		05,7177	3 7515 1		CAF	IDADDTAB	
2250	REF	5	LAST 515	05,7200	5 0056 1		TS	IDAD1TEM	LOAD IDAD1TEM WITH FIRST IDADDTAB ENTRY.
2251	REF	280	LAST 540	05,7201	2 0001 1		INDEX	Q	
2252	REF	2	LAST 540	05,7202	3 7516 1		CAF	IDADDTAB +1	
2253	REF	1		05,7203	5 0057 0		TS	IDAD2TEM	LOAD IDAD2TEM WITH 2ND IDADDTAB ENTRY.
2254	REF	281	LAST 540	05,7204	2 0001 1		INDEX	Q	
2255	REF	3	LAST 540	05,7205	3 7517 0		CAF	IDADDTAB +2	
2256	REF	2	LAST 540	05,7206	3 0060 1	LODNLV	XCH	IDAD3TEM	LOAD IDAD3TEM WITH 3RD IDADDTAB ENTRY.
2257	REF	432	LAST 540	05,7207	0 0000 1		TC	A	PUT RETURN ADDESS INTO A.
2258	REF	188	LAST 537	05,7210	3 4516 1	LODNORM	CAF	ONE	
2259	REF	13	LAST 540	05,7211	5 0107 1		TS	MIXBR	
2260	REF	1		05,7212	0 7206 1		TC	LODNLV	

R2261 GTSFOUT LOADS SFTEMP1, SFTEMP2 WITH THE DP SFOUTAB ENTRIES.

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2262	REF	11	LAST	519	05,7213	2	0111	1	GTSFOUT	INDEX	SFTEMP2	SF CONUM ARRIVES IN SFTEMP2.
2263	REF	1			05,7214	3	7463	1		CAF	SFOUTAB1	
2264	REF	20	LAST	519	05,7215	5	0110	1		TS	SFTEMP1	
2265	REF	12	LAST	541	05,7216	2	0111	1		INDEX	SFTEMP2	
2266	REF	1			05,7217	3	7500	0		CAF	SFOUTAB2	
2267	REF	13	LAST	541	05,7220	5	0111	0		TS	SFTEMP2	
2268	REF	282	LAST	540	05,7221	0	0001	0		TC	Q	

R2269 GTSFIN LOADS SFTEMP1, SFTEMP2 WITH THE DP SFINTAB ENTRIES.

2270	REF	14	LAST	541	05,7222	2	0111	1	GTSFIN	INDEX	SFTEMP2	SF CONUM ARRIVES IN SFTEMP2.
2271	REF	1			05,7223	3	7431	0		CAF	SFINTAB1	
2272	REF	21	LAST	541	05,7224	5	0110	1		TS	SFTEMP1	
2273	REF	15	LAST	541	05,7225	2	0111	1		INDEX	SFTEMP2	
2274	REF	1			05,7226	3	7446	0		CAF	SFINTAB2	
2275	REF	16	LAST	541	05,7227	5	0111	0		TS	SFTEMP2	
2276	REF	283	LAST	541	05,7230	0	0001	0		TC	Q	

A2277

2278					05,7231	00000	1	NNADTAB	OCT	00000	NN NORMAL NOUNS
2279					05,7232	40000	0		OCT	40000	00 NOT IN USE
2280					05,7233	40000	0		OCT	40000	01 SPECIFY MACHINE ADDRESS (FRACTIONAL)
2281					05,7234	40000	0		OCT	40000	02 SPECIFY MACHINE ADDRESS (WHOLE)
2282					05,7235	40000	0		OCT	40000	03 SPECIFY MACHINE ADDRESS (DEGREES)
2283					05,7236	40000	0		OCT	40000	04 SPECIFY MACHINE ADDRESS (HOURS)
2284					05,7237	40000	0		OCT	40000	05 SPECIFY MACHINE ADDRESS (SECONDS)
2285					05,7240	40000	0		OCT	40000	06 SPECIFY MACHINE ADDRESS (GYRO DEG)
2286					05,7241	00000	1		OCT	00000	07 SPECIFY MACHINE ADDRESS (Y OPT DEG.)
2287					05,7242	00000	1		OCT	00000	10 SPARE
2288					05,7243	00000	1		OCT	00000	11 SPARE
2289					05,7244	00000	1		OCT	00000	12 SPARE
2290					05,7245	00000	1		OCT	00000	13 SPARE
2291					05,7246	77777	0		OCT	77777	14 SPARE
2292					05,7247	00035	1		OCT	00035	15 INCREMENT MACHINE ADDRESS
2293					05,7250	00035	1		OCT	00035	16 TIME SECONDS
2294	REF	18	LAST	409	05,7251	00047	1		OCT	00035	17 TIME HOURS
2295	REF	13	LAST	456	05,7252	00044	1		ADRES	CDUX	20 ICPU
2296	REF	19	LAST	469	05,7253	00700	0		ADRES	PIPAX	21 PIPAS
2297	REF	13	LAST	453	05,7254	00621	1		ADRES	THETAD	22 NEW ANGLES I
2298	REF	46	LAST	530	05,7255	00616	0		ADRES	DSPTM2	23 DELTA ANGLES I
2299	REF	47	LAST	541	05,7256	00616	0		ADRES	DSPTM1	24 DELTA TIME (SEC)
2300	REF	48	LAST	541	05,7257	00616	0		ADRES	DSPTM1	25 CHECKLIST
2301	REF	8	LAST	284	05,7260	01762	0		ADRES	DSPTM1	26 PRIQ/DELAY
2302	REF	49	LAST	541	05,7261	00616	0		ADRES	SMODE	27 SELF TEST ON/OFF SWITCH
2303	REF	10	LAST	493	05,7262	01763	1		ADRES	DSPTM1	30 STAR NUMBERS
2304	REF	7	LAST	330	05,7263	01266	1		ADRES	FAILREG	31 FAILREG, SFAIL, ERCOUNT
									ADRES	TDEC	32 DECISION TIME (MIDCOURSE)

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2305	REF	4 LAST 328	05,7264	01146 0	ADRES	TET	33	EPHEMERIS TIME(MIDCOURSE)
2306	REF	1	05,7265	01276 0	ADRES	MEASQ	34	MEASURED QUANTITY (MIDCOURSE)
2307	REF	1	05,7266	01314 0	ADRES	ROLL	35	ROLL, PITCH, YAW
2308	REF	1	05,7267	00616 0	ADRES	LANDMARK	36	LANDMARK DATA 1
2309	REF	2 LAST 542	05,7270	00621 1	ADRES	LANDMARK +3	37	LANDMARK DATA 2
2310	REF	50 LAST 541	05,7271	00616 0	ADRES	DSPTM1	40	VG FOR 501
2311			05,7272	00000 1	OCT	00000	41	SPARE
2312			05,7273	00000 1	OCT	00000	42	SPARE
2313			05,7274	00000 1	OCT	00000	43	SPARE
2314			05,7275	00000 1	OCT	00000	44	SPARE
2315			05,7276	00000 1	OCT	00000	45	SPARE
2316			05,7277	00000 1	OCT	00000	46	SPARE
2317			05,7300	00000 1	OCT	00000	47	SPARE
2318			05,7301	00000 1	OCT	00000	50	SPARE
2319			05,7302	00000 1	OCT	00000	51	SPARE
2320	REF	3 LAST 222	05,7303	00744 0	ADRES	GBIASX	52	GYRO BIAS DRIFT
2321	REF	2 LAST 216	05,7304	00747 0	ADRES	ADIAX	53	GYRO INPUT AXIS ACCELERATION DRIFT
2322	REF	2 LAST 216	05,7305	00752 1	ADRES	ADSRAX	54	GYRO SPIN AXIS ACCELERATION DRIFT
A2323							NN	MIXED NOUNS
2324			05,7306	02000 0	OCT	02000	55	OCDU
2325			05,7307	04002 1	OCT	04002	56	UNCALLED MARK DATA (OCDU & TIME(SEC))
2326			05,7310	02005 0	OCT	02005	57	NEW ANGLES OCDU
2327			05,7311	04007 1	OCT	04007	60	IMU MODE STATUS
2328			05,7312	02012 0	OCT	02012	61	TARGET AZIMUTH AND ELEVATION
2329			05,7313	04062 1	OCT	04062	62	RE-ENTRY VARIABLES
2330			05,7314	02016 1	OCT	02016	63	OCDEX AND TIME(SEC)
2331			05,7315	02020 1	OCT	02020	64	OCDEY AND TIME(SEC)
2332			05,7316	02022 0	OCT	02022	65	SAMPLED TIME (HOURS AND SECONDS)
A2333								(FETCHED IN INTERRUPT)
2334			05,7317	04024 0	OCT	04024	66	SYSTEM TEST RESULTS
2335			05,7320	04027 0	OCT	04027	67	DELTA GYRO ANGLES
2336			05,7321	04032 1	OCT	04032	70	PIPA BIAS
2337			05,7322	04035 0	OCT	04035	71	PIPA SCALE FACTOR ERROR
2338			05,7323	04040 1	OCT	04040	72	DELTA POSITION
2339			05,7324	04043 1	OCT	04043	73	DELTA VELOCITY
2340			05,7325	04046 1	OCT	04046	74	MEASUREMENT DATA (MIDCOURSE)
2341			05,7326	04051 1	OCT	04051	75	MEASUREMENT DEVIATIONS (MIDCOURSE)
2342			05,7327	04054 1	OCT	04054	76	POSITION VECTOR
2343			05,7330	04057 1	OCT	04057	77	VELOCITY VECTOR
A2344							NN	NORMAL NOUNS
2345			05,7331	00000 1	NNTYPTAB OCT	00000	00	NOT IN USE
2346			05,7332	00040 0	OCT	00040	01	1COMP FRACTIONAL
2347			05,7333	00140 1	OCT	00140	02	1COMP WHOLE
2348			05,7334	00102 1	OCT	00102	03	1COMP DEGREES
2349			05,7335	00241 0	OCT	00241	04	1COMP HOURS
2350			05,7336	00200 0	OCT	00200	05	1COMP SECONDS

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2351	05,7337	00203 0	OCT	00203	06 1COMP	GYRO DEGREES
2352	05,7340	00302 0	OCT	00302	07 1COMP	Y OPT DEGREES
2353	05,7341	00000 1	OCT	00000	10	SPARE
2354	05,7342	00000 1	OCT	00000	11	SPARE
2355	05,7343	00000 1	OCT	00000	12	SPARE
2356	05,7344	00000 1	OCT	00000	13	SPARE
2357	05,7345	00000 1	OCT	00000	14	SPARE
2358	05,7346	00000 1	OCT	00000	15 1COMP	OCTAL ONLY
2359	05,7347	00200 0	OCT	00200	16 1COMP	SECONDS
2360	05,7350	00241 0	OCT	00241	17 1COMP	HOURS
2361	05,7351	04102 0	OCT	04102	20 3COMP	DEGREES
2362	05,7352	04140 0	OCT	04140	21 3COMP	WHOLE
2363	05,7353	04102 0	OCT	04102	22 3COMP	DEGREES
2364	05,7354	04102 0	OCT	04102	23 3COMP	DEGREES
2365	05,7355	00200 0	OCT	00200	24 1COMP	SECONDS
2366	05,7356	00140 1	OCT	00140	25 1COMP	WHOLE
2367	05,7357	00140 1	OCT	00140	26 1COMP	WHOLE
2368	05,7360	00140 1	OCT	00140	27 1COMP	WHOLE
2369	05,7361	04140 0	OCT	04140	30 3COMP	WHOLE
2370	05,7362	04000 0	OCT	04000	31 3COMP	OCTAL ONLY
2371	05,7363	00252 1	OCT	00252	32 1COMP	TIME WEEKS
2372	05,7364	00252 1	OCT	00252	33 1COMP	TIME WEEKS
2373	05,7365	00350 1	OCT	00350	34 1COMP	POSITION
2374	05,7366	04102 0	OCT	04102	35 3COMP	DEGREES
2375	05,7367	04000 0	OCT	04000	36 3COMP	OCTAL ONLY
2376	05,7370	04000 0	OCT	04000	37 3COMP	OCTAL ONLY
2377	05,7371	04154 0	OCT	04154	40 3COMP	VG FOR 501
2378	05,7372	00000 1	OCT	00000	41	SPARE
2379	05,7373	00000 1	OCT	00000	42	SPARE
2380	05,7374	00000 1	OCT	00000	43	SPARE
2381	05,7375	00000 1	OCT	00000	44	SPARE
2382	05,7376	00000 1	OCT	00000	45	SPARE
2383	05,7377	00000 1	OCT	00000	46	SPARE
2384	05,7400	00000 1	OCT	00000	47	SPARE
2385	05,7401	00000 1	OCT	00000	50	SPARE
2386	05,7402	00000 1	OCT	00000	51	SPARE
2387	05,7403	04144 1	OCT	04144	52 3COMP	GYRO BIAS DRIFT
2388	05,7404	04145 0	OCT	04145	53 3COMP	GYRO AXIS ACCEL. DRIFT
2389	05,7405	04145 0	OCT	04145	54 3COMP	GYRO AXIS ACCEL. DRIFT
A2390					NN	MIXED NOUNS
2391	05,7406	00102 1	OCT	00102	55 2COMP	DEGREES, Y OPT DEGREES
2392	05,7407	00102 1	OCT	00102	56 3COMP	DEGREES, Y OPT DEGREES, SECS
2393	05,7410	00102 1	OCT	00102	57 2COMP	DEGREES, Y OPT DEGREES
2394	05,7411	00000 1	OCT	00000	60 3COMP	OCTAL ONLY
2395	05,7412	00542 1	OCT	00542	61 2COMP	DEGREES, ELEVATION DEGREES
2396	05,7413	00000 1	OCT	00000	62 3COMP	SECS, WHOLE, WHOLE
2397	05,7414	00002 0	OCT	00002	63 2COMP	DEGREES, SECS
2398	05,7415	00002 0	OCT	00002	64 2COMP	Y OPT DEGREES, SECS
2399	05,7416	00001 0	OCT	00001	65 2COMP	HOURS, SECONDS

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2400	05,7417	00000 1	OCT	00000	66 3COMP	WHOLE, FRACTIONAL, WHOLE
2401	05,7420	06143 1	OCT	06143	67 3COMP	GYRO DEGREES FOR EACH
2402	05,7421	14306 1	OCT	14306	70 3COMP	PIPA BIAS FOR EACH
2403	05,7422	16347 0	OCT	16347	71 3COMP	PIPA SCALE FACTOR ERR. FOR EACH
2404	05,7423	20410 0	OCT	20410	72 3COMP	POSITION FOR EACH
2405	05,7424	22451 1	OCT	22451	73 3COMP	VELOCITY FOR EACH
2406	05,7425	00412 0	OCT	00412	74 3COMP	TIME WEEKS, POSITION, WHOLE
2407	05,7426	20450 1	OCT	20450	75 3COMP	POSITION, VELOCITY, POSITION
2408	05,7427	20410 0	OCT	20410	76 3COMP	POSITION FOR EACH
2409	05,7430	22451 1	OCT	22451	77 3COMP	VELOCITY FOR EACH

2410	05,7431	00006 1	SFINTAB1	OCT	00006	WHOLE, TIME(SEC)	HIGH PART
2411	05,7432	00253 0		OCT	00253	TIME HOURS(=1.3-, PT. BETWEEN BITS 7-8)	
2412	05,7433	00000 1		OCT	0	DEGREES	
2413	05,7434	00021 1		OCT	00021	GYRO DEGREES	
2414	05,7435	00001 0		OCT	00001	GYRO BIAS DRIFT	
2415	05,7436	00011 1		OCT	00011	GYRO AXIS ACCEL. DRIFT	
2416	05,7437	00004 0		OCT	00004	PIPA BIAS	
2417	05,7440	00314 1		OCT	00314	PIPA SCALE ERROR	
2418	05,7441	23420 0		OCT	23420	POSITION	
2419	05,7442	00201 1		OCT	00201	VELOCITY (POINT BETWEEN BITS 7-8)	
2420	05,7443	01371 0		OCT	01371	TIME WEEKS (POINT BETWEEN BITS 7-8)	
2421	05,7444	00001 0		OCT	00001	ELEVATION DEGREES	
24211	05,7445	00003 1		OCT	00003	VG FOR 501	
R2422	END OF SFINTAB1						

2423	05,7446	03240 1	SFINTAB2	OCT	03240	WHOLE, TIME(SEC)	LO PART
2424	05,7447	25124 1		OCT	25124	TIME HOURS	
2425	05,7450	00000 1		OCT	0	DEGREES (SFCON IN DEGINSF)	
2426	05,7451	30707 1		OCT	30707	GYRO DEGREES	
2427	05,7452	02133 1		OCT	02133	GYRO BIAS DRIFT	
2428	05,7453	30322 1		OCT	30322	GYRO AXIS ACCEL. DRIFT	
2429	05,7454	14021 1		OCT	14021	PIPA BIAS	
2430	05,7455	31463 1		OCT	31463	PIPA SCALE ERROR	
2431	05,7456	00000 1		OCT	00000	POSITION	
2432	05,7457	30327 1		OCT	30327	VELOCITY	
2433	05,7460	34750 1		OCT	34750	TIME WEEKS	
2434	05,7461	03434 1		OCT	03434	ELEVATION DEGREES	
24341	05,7462	04000 0		OCT	04000	VG FOR 501	
R2435	END OF SFINTAB2						

2436	05,7463	05174 0	SFOUTAB1	OCT	05174	WHOLE, TIME(SEC)	HIGH PART
2437	05,7464	27670 0		OCT	27670	TIME HOURS	
2438	05,7465	00000 1		OCT	0	DEGREES	

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2439	05,7466	01631 1	OCT	01631	GYRO DEGREES
2440	05,7467	35753 0	OCT	35753	GYRO BIAS DRIFT
2441	05,7470	03216 1	OCT	03216	GYRO AXIS ACCEL. DRIFT
2442	05,7471	07237 0	OCT	07237	PIPA BIAS
2443	05,7472	00120 1	OCT	00120	PIPA SCALE ERROR
2444	05,7473	00321 1	OCT	00321	POSITION (POINT BETWEEN BITS 7-8)
2445	05,7474	37441 1	OCT	37441	VELOCITY
2446	05,7475	05300 1	OCT	05300	TIME WEEKS
2447	05,7476	34631 1	OCT	34631	ELEVATION DEGREES
24471	05,7477	12172 0	OCT	12172	VG FOR 501
R2448	END OF SFOUTAB1				

2449	05,7500	13261 0	SFOUTAB2	OCT	13261	WHOLE, TIME(SEC)	LO PART
2450	05,7501	31357 1	OCT	31357	TIME HOURS		
2451	05,7502	00000 1	OCT	0	DEGREES		
2452	05,7503	23146 0	OCT	23146	GYRO DEGREES		
2453	05,7504	32323 1	OCT	32323	GYRO BIAS DRIFT		
2454	05,7505	06400 0	OCT	06400	GYRO AXIS ACCEL. DRIFT		
2455	05,7506	37776 0	OCT	37776	PIPA BIAS		
2456	05,7507	00000 1	OCT	00000	PIPA SCALE ERROR		
2457	05,7510	26706 1	OCT	26706	POSITION		
2458	05,7511	14247 0	OCT	14247	VELOCITY		
2459	05,7512	20305 0	OCT	20305	TIME WEEKS		
2460	05,7513	23146 0	OCT	23146	ELEVATION DEGREES		
24601	05,7514	34121 1	OCT	34121	VG FOR 501		
R2461	END OF SFOUTAB2						

A2462	REF								MIXNOUN	SF ROUT	REG	
2463	REF	4	LAST	206	05,7515	04052 1	IDADDTAB	CADR	OPTX	+04000	01	DEGREES 52
2464	REF	4	LAST	206	05,7516	14053 1		CADR	OPTY	+14000	01	Y OPT DEGREES 53
2465	REF	51	LAST	542	05,7517	04616 1		CADR	DSPTM1	+04000	02	DEGREES 627
2466	REF	52	LAST	545	05,7520	14617 1		CADR	DSPTM1	+14001	02	Y OPT DEGREES 630
2467	REF	53	LAST	545	05,7521	10620 1		CADR	DSPTM1	+10002	02	SEC 631
2468	REF	3	LAST	171	05,7522	04704 0		CADR	DESOPTX	+04000	03	DEGREES 724
2469	REF	4	LAST	545	05,7523	14705 0		CADR	DESOPTX	+14001	03	Y OPT DEGREES 725
2470	REF	20	LAST	493	05,7524	00007 0		CADR	IN3		04	OCTAL ONLY
2471	REF	28	LAST	493	05,7525	00727 0		CADR	WASKSET		04	OCTAL ONLY
2472	REF	34	LAST	493	05,7526	00726 1		CADR	OLDERR		04	OCTAL ONLY
2473	REF	54	LAST	545	05,7527	04616 1		CADR	DSPTM1	+04000	05	DEGREES
2474	REF	55	LAST	545	05,7530	06617 1		CADR	DSPTM1	+06001	05	ELEVATION DEGREES
2475					05,7531	00000 1		OCT	00000			N 62 WAS 2COMP. CHANGED TO 3COMP. MOVED
2476					05,7532	00000 1		OCT	00000			TO END OF IDADDTAB TO PRESERVE TABLE.
2477	REF	5	LAST	545	05,7533	04052 1		CADR	OPTX	+04000	07	DEGREES 52
2478	REF	13	LAST	415	05,7534	10035 0		CADR	TIME2	+10000	07	SEC 35
2479	REF	5	LAST	545	05,7535	14053 1		CADR	OPTY	+14000	10	Y OPT DEGREES 53
2480	REF	14	LAST	545	05,7536	10035 0		CADR	TIME2	+10000	10	SEC 35

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2481	REF	3	LAST	191	05,7537	12643	0	CADR	SAMPTIME	+12000	11	HOURS	655
2482	REF	4	LAST	546	05,7540	10643	1	CADR	SAMPTIME	+10000	11	SECONDS	655
2483	REF	14	LAST	541	05,7541	06621	1	CADR	DSPTM2	+06000	12	WHOLE	632
2484	REF	15	LAST	546	05,7542	02622	0	CADR	DSPTM2	+02001	12	FRACTIONAL	633
2485	REF	16	LAST	546	05,7543	06623	0	CADR	DSPTM2	+06002	12	WHOLE	634
2486	REF	27	LAST	469	05,7544	11520	0	CADR	OGC	+10000	13	GYRO DEGREES	
2487	REF	28	LAST	546	05,7545	11522	1	CADR	OGC	+10002	13	GYRO DEGREES	
2488	REF	29	LAST	546	05,7546	11524	1	CADR	OGC	+10004	13	GYRO DEGREES	
2489	REF	2	LAST	21	05,7547	06736	0	CADR	PBIASX	+06000	14	PIPA BIAS	
2490	REF	1			05,7550	06740	1	CADR	PBIASY	+06000	14	PIPA BIAS	
2491	REF	1			05,7551	06742	0	CADR	PBIASZ	+06000	14	PIPA BIAS	
2492	REF	2	LAST	21	05,7552	06737	1	CADR	PIPASCFX	+06000	15	PIPA SCALE FACTOR ERROR	
2493	REF	1			05,7553	06741	0	CADR	PIPASCFY	+06000	15	PIPA SCALE FACTOR ERROR	
2494	REF	1			05,7554	06743	1	CADR	PIPASCFZ	+06000	15	PIPA SCALE FACTOR ERROR	
2495	REF	1			05,7555	17152	1	CADR	DELR	+16000	16	POSITION	
2496	REF	2	LAST	546	05,7556	17154	1	CADR	DELR	+16002	16	POSITION	
2497	REF	3	LAST	546	05,7557	17156	0	CADR	DELR	+16004	16	POSITION	
2498	REF	1			05,7560	13160	1	CADR	DELVEL	+12000	17	VELOCITY	
2499	REF	2	LAST	546	05,7561	13162	0	CADR	DELVEL	+12002	17	VELOCITY	
2500	REF	3	LAST	546	05,7562	13164	0	CADR	DELVEL	+12004	17	VELOCITY	
2501	REF	8	LAST	541	05,7563	13266	1	CADR	TDEC	+12000	20	TIME WEEKS	
2502	REF	2	LAST	542	05,7564	17276	1	CADR	MEASQ	+16000	20	POSITION	
2503	REF	8	LAST	330	05,7565	07300	0	CADR	MEASMODE	+06000	20	WHOLE	
2504	REF	56	LAST	545	05,7566	16616	1	CADR	DSPTM1	+16000	21	POSITION	
2505	REF	57	LAST	546	05,7567	12620	0	CADR	DSPTM1	+12002	21	VELOCITY	
2506	REF	1			05,7570	17276	1	CADR	DELTAQ	+16000	21	POSITION	
2507	REF	58	LAST	546	05,7571	16616	1	CADR	DSPTM1	+16000	22	POSITION	
2508	REF	59	LAST	546	05,7572	16620	1	CADR	DSPTM1	+16002	22	POSITION	
2509	REF	60	LAST	546	05,7573	16622	0	CADR	DSPTM1	+16004	22	POSITION	
2510	REF	61	LAST	546	05,7574	12616	0	CADR	DSPTM1	+12000	23	VELOCITY	
2511	REF	62	LAST	546	05,7575	12620	0	CADR	DSPTM1	+12002	23	VELOCITY	
2512	REF	63	LAST	546	05,7576	12622	1	CADR	DSPTM1	+12004	23	VELOCITY	
2513	REF	15	LAST	545	05,7577	10035	0	CADR	TIME2	+10000	06	SEC	
2514	REF	1			05,7600	07617	0	CADR	V	+06000	06	WHOLE	
2515	REF	1			05,7601	07110	0	CADR	THETAH	+06000	06	WHOLE	
2516					05,7602	00000	1	OCT	00000			SPARE	
2517					05,7603	00000	1	OCT	00000			SPARE	
2518					05,7604	00000	1	OCT	00000			SPARE	

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P2520 MISCELLANEOUS SERVICE ROUTINES

2521	REF	2	LAST	535		3171		SETLOC	DATWAIT1	+2
------	-----	---	------	-----	--	------	--	--------	----------	----

2522					3171	00016	0	R1D1	OCT	16
2523					3172	00011	1	R2D1	OCT	11
2524					3173	00004	0	R3D1	OCT	4

2525	REF	39	LAST	533	3174	5	0020	0	RIGHT5	TS	CYR
2526	REF	40	LAST	547	3175	4	0020	1		CS	CYR
2527	REF	41	LAST	547	3176	4	0020	1		CS	CYR
2528	REF	42	LAST	547	3177	4	0020	1		CS	CYR
2529	REF	43	LAST	547	3200	4	0020	1		CS	CYR
2530	REF	44	LAST	547	3201	3	0020	0		XCH	CYR
2531	REF	284	LAST	541	3202	0	0001	0		TC	Q

2532	REF	24	LAST	526	3203	5	0022	1	LEFT5	TS	CYL
2533	REF	25	LAST	547	3204	4	0022	0		CS	CYL
2534	REF	26	LAST	547	3205	4	0022	0		CS	CYL
2535	REF	27	LAST	547	3206	4	0022	0		CS	CYL
2536	REF	28	LAST	547	3207	4	0022	0		CS	CYL
2537	REF	29	LAST	547	3210	3	0022	1		XCH	CYL
2538	REF	285	LAST	547	3211	0	0001	0		TC	Q

2539					3212	6	0000	1	SLEFT5	DOUBLE	
2540					3213	6	0000	1		DOUBLE	
2541					3214	6	0000	1		DOUBLE	
2542					3215	6	0000	1		DOUBLE	
2543					3216	6	0000	1		DOUBLE	
2544	REF	286	LAST	547	3217	0	0001	0		TC	Q

2545					3220	00037	0	LOW5	OCT	37
2546					3221	01740	0	MID5	OCT	1740
2547					3222	76000	0		OCT	76000

MUST STAY HERE.

2548	REF	16	LAST	522	3223	0	2052	1	TCNOVAC	TC	NOVAC
2549	REF	61	LAST	522	3224	0	2173	0	TCWAIT	TC	WAITLIST
2550	REF	47	LAST	522	3225	0	2256	1	TCTSKOVR	TC	TASKOVER
2551	REF	13	LAST	414	3226	0	2046	1	TCFINDVC	TC	FINDVAC

2552					3227	00023	0	VD1	OCT	23
2553					3230	00021	1	ND1	OCT	21
2554					3231	00025	0	MD1	OCT	25

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2555				3232	00012 1	BINCON	DEC	10	
2556	REF	3 LAST 524		3232		TEN	EQUALS	BINCON	
2557				3233	2 0017 0	FALTON	INHINT		TURN PROGRAM CHECK LIGHT ON
2558	REF	10 LAST 265		3234	4 4512 1		CS	BIT5	OUT1,BIT5(ALSO KNOWN AS ILLEGAL ORDER)
2559	REF	35 LAST 492		3235	7 0011 0		MASK	OUT1	
2560	REF	11 LAST 548		3236	6 4512 0		AD	BIT5	
2561	REF	36 LAST 548		3237	5 0011 1		TS	OUT1	
2562				3240	2 0016 1		RELINT		
2563	REF	287 LAST 547		3241	0 0001 0		TC	Q	
2564				3242	2 0017 0	FALTOF	INHINT		TURN PROGRAM CHECK LIGHT OFF
2565	REF	12 LAST 548		3243	4 4512 1		CS	BIT5	
2566	REF	37 LAST 548		3244	7 0011 0		MASK	OUT1	
2567	REF	38 LAST 548		3245	5 0011 1		TS	OUT1	
2568				3246	2 0016 1		RELINT		
2569	REF	288 LAST 548		3247	0 0001 0		TC	Q	
2570				3250	2 0017 0	RELDSPON	INHINT		TURN ON RELEASE DISPLAY SYST LIGHT
2571	REF	12 LAST 393		3251	4 4514 1		CS	BIT3	
2572	REF	39 LAST 548		3252	7 0011 0		MASK	OUT1	
2573	REF	13 LAST 548		3253	6 4514 0		AD	BIT3	
2574	REF	40 LAST 548		3254	5 0011 1		TS	OUT1	
2575				3255	2 0016 1		RELINT		
2576	REF	289 LAST 548		3256	0 0001 0		TC	Q	
2577	REF	24 LAST 533		3257	4 4513 0	DSPLOCK0	CS	BIT4	
2578				3260	2 0017 0		INHINT		DSPLOCK = BIT4 OF STATE
2579	REF	4 LAST 533		3261	7 0645 1		MASK	DSPLOCK	
2580	REF	5 LAST 548		3262	5 0645 0		TS	DSPLOCK	
2581				3263	2 0016 1		RELINT		
2582	REF	290 LAST 548		3264	0 0001 0		TC	Q	
2583	REF	25 LAST 548		3265	4 4513 0	DSPLOCK1	CS	BIT4	
2584				3266	2 0017 0		INHINT		DSPLOCK = BIT 4 OF STATE
2585	REF	6 LAST 548		3267	7 0645 1		MASK	DSPLOCK	
2586	REF	26 LAST 548		3270	6 4513 1		AD	BIT4	
2587	REF	7 LAST 548		3271	3 0645 0		XCH	DSPLOCK	LEAVES OLD C(DSPLOCK) IN A.
2588				3272	2 0016 1		RELINT		
2589	REF	291 LAST 548		3273	0 0001 0		TC	Q	
2590	REF	27 LAST 548		3274	3 4513 1	TSTDSPK	CAF	BIT4	SIMULATES CCS DSPLOCK
2591	REF	8 LAST 548		3275	7 0645 1		MASK	DSPLOCK	
2592	REF	433 LAST 540		3276	1 0000 0		CCS	A	
2593	REF	292 LAST 548		3277	0 0001 0		TC	Q	DSPLOCK = 1, RETURN TO L+1
2594	REF	293 LAST 548		3300	2 0001 1		INDEX	Q	
2595				3301	0 0001 0		TC	1	DSPLOCK = 0, RETURN TO L+2

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P2596 INTERNAL ROUTINES THAT USE THE KEYBOARD AND DISPLAY SYSTEM(THRU
R2597 NVSUB) MUST TC GRABDSP BEFOREHAND , TO GRAB THE DISPLAY SYSTEM AND
R2598 MAKE IT BUSY TO OTHER INTERNAL USERS.

R2599 WHEN FINISHED , THERE MUST BE A TC FREEDSP , TO RELEASE THE
R2600 SYSTEM FOR OTHER INTERNAL USERS.

R2601 THE CALLING SEQUENCES ARE

R2602 L TC GRABDSP
R2603 L+1 RETURN HERE WHEN SYSTEM IS ALREADY GRABBED
R2604 L+2 RETURN HERE MEANS YOU HAVE IT

R2605 L TC NVSUB
R2606 L+1 RETURN HERE IF OPERATOR HAS INTERVENED
R2607 L+2 RETURN HERE AFTER EXECUTION

R2608 A ROUTINE CALLED GRABUSY IS PROVIDED (USE IS OPTIONAL) TO PUT YOUR
R2609 JOB TO SLEEP UNTIL THE SYSTEM IS FREED BY THE JOB HOLDING IT.
R2610 YOUR CADR IS PUT AT FIRST AVAILABLE SLOT IN A WAITING LIST (FIFO).

R2611 THE CALLING SEQUENCE IS
R2612 CAF WAKECADR
R2613 TC GRABUSY

R2614 A ROUTINE CALLED NVSUBUSY IS PROVIDED (USE IS OPTIONAL) TO PUT
R2615 YOUR JOB TO SLEEP UNTIL THE OPERATOR RELEASES IT. YOUR CADR IS PUT
R2616 ON TOP OF A WAITING LIST (FIFO). IT ALSO TURNS ON KEY RELEASE LIGHT.

R2617 THE CALLING SEQUENCE IS
R2618 CAF WAKECADR
R2619 TC NVSUBUSY

R2620 AFTER A TC FREEDSP, THE INTERNAL INTERLOCK IS KEPT BUSY FOR 10 SECONDS,
R2621 AFTER WHICH A CADR IS CALLED FROM THE LIST. THIS INSURES THAT ALL
R2622 DISPLAYS WAITING WILL BE VISIBLE.

R2623 GRABLOCK IS THE INTERNAL INTERLOCK FOR THE USE OF THE KEYBOARD
R2624 AND DISPLAY SYSTEM.
R2625 +0 FREE
R2626 +1 SOME INTERNAL ROUTINE HAS GRABBED DSP SYST
R2627 +2 SOME INTERNAL ROUTINE HAS GONE TO NVSUBUSY

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2628	REF	3	LAST	521	3302	1	0630	0	GRABDSP	CCS	GRABLOCK	
2629	REF	294	LAST	548	3303	0	0001	0		TC	Q	GRABBED. RETURN TO L+1
2630	REF	189	LAST	540	3304	3	4516	1		CAF	ONE	NOT GRABBED, SET TO +1
2631	REF	4	LAST	550	3305	5	0630	1		TS	GRABLOCK	AND RETURN TO L+2
2632	REF	295	LAST	550	3306	2	0001	1		INDEX	Q	
2633					3307	0	0001	0		TC	1	
2634	REF	19	LAST	540	3310	3	4606	0	PREGBSY	CAF	LOW10	SPECIAL ENTRANCE FOR ROUTINES IN BANKS
2635	REF	296	LAST	550	3311	7	0001	1		MASK	Q	DESIRING THE CADR OF 1 + (LOC FROM WHICH
2636	REF	47	LAST	535	3312	6	0015	0		AD	BANKREG	TC PREGBSY WAS DONE) TO BE ENTERED.
2637	REF	23	LAST	535	3313	0	5720	1	GRABUSY	TC	POSTJUMP	
2638	REF	1			3314		16001	1		CADR	GRABUSYB	
2639	REF	1					07,7434			SETLOC	ENDSPMM1 +1	
2640	REF	1			07,7434	5	0114	0	GRABUSY1	TS	CADRTEM	
2641	REF	5	LAST	550	07,7435	1	0630	0		CCS	GRABLOCK	
2642					07,7436	0	7441	1		TC	+3	STILL GRABBED
2643	REF	2	LAST	550	07,7437	3	0114	0		XCH	CADRTEM	NOT GRABBED SO DO DIRECT CALL
2644	REF	18	LAST	528	07,7440	0	5723	1		TC	BANKJUMP	
2645	REF	83	LAST	540	07,7441	3	5503	1		CAF	TWO	
2646	REF	1			07,7442	5	0113	1		TS	LSTPTR	
2647	REF	2	LAST	550	07,7443	2	0113	0		INDEX	LSTPTR	SEARCH LIST FOR FIRST AVAILABLE SPACE
2648	REF	4	LAST	148	07,7444	1	0634	1		CCS	DSPLIST	FROM BOTTOM.
2649					07,7445	0	7447	1		TC	+2	
2650	REF	1			07,7446	0	7452	0		TC	PUTINLST	SPACE FOUND
2651	REF	3	LAST	550	07,7447	1	0113	0		CCS	LSTPTR	DECREMENT POINTER
2652					07,7450	0	7442	1		TC	-6	
2653	REF	1			07,7451	0	7526	1		TC	LSTFULL	
2654	REF	3	LAST	550	07,7452	3	0114	0	PUTINLST	XCH	CADRTEM	
2655	REF	4	LAST	550	07,7453	2	0113	0		INDEX	LSTPTR	
2656	REF	5	LAST	550	07,7454	5	0634	0		TS	DSPLIST	
2657	REF	19	LAST	535	07,7455	0	2127	1		TC	JOBSLEEP	
2658	REF	2	LAST	122			3315			SETLOC	GRABUSY +2	
2659	REF	1			3315	4	3322	0	PRENVBSY	CS	6K+3	SPECIAL ENTRANCE FOR ROUTINES IN BANKS
2660	REF	297	LAST	550	3316	6	0001	0		AD	Q	DESIRING THE CADR OF (LOC FROM WHICH THE
2661	REF	48	LAST	550	3317	6	0015	0		AD	BANKREG	TC PRENVBSY WAS DONE) -2 TO BE ENTERED.
2662	REF	24	LAST	550	3320	0	5720	1	NVSUBUSY	TC	POSTJUMP	
2663	REF	1			3321		16002	1		CADR	NVSUBSYB	
2664					3322		06003	1	6K+3	OCT	6003	TC PRENVBSY WAS DONE) -2 TO BE ENTERED.
2665	REF	2	LAST	550			07,7456			SETLOC	PUTINLST +4	
2666	REF	4	LAST	550	07,7456	5	0114	0	NVSUBSY1	TS	CADRTEM	
2667	REF	2	LAST	522	07,7457	0	3274	0		TC	TSTDSPK	TEST IF REALLY LOCKED OUT
2668					07,7460	0	7463	1		TC	+3	STILL BUSY
2669	REF	5	LAST	550	07,7461	3	0114	0		XCH	CADRTEM	DSLOCK = +0 SO RETURN DIRECTLY

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2670	REF	19	LAST	550	07,7462	0	5723	1	TC	BANKJUMP	
2671	REF	84	LAST	550	07,7463	3	5503	1	CAF	TWO	SET FOR GRABBED STATE AND NVSUBUSY USE
2672	REF	6	LAST	550	07,7464	5	0630	1	TS	GRABLOCK	
2673	REF	6	LAST	550	07,7465	3	0114	0	XCH	CADRTM	
2674	REF	6	LAST	550	07,7466	3	0636	1	XCH	DSPLIST +2	ENTER CADR INTO FIRST POSITION OF LIST
2675	REF	7	LAST	551	07,7467	3	0635	1	XCH	DSPLIST +1	(BOTTOM)
2676	REF	8	LAST	551	07,7470	3	0634	0	XCH	DSPLIST	
2677	REF	434	LAST	548	07,7471	1	0000	0	CCS	A	
2678	REF	2	LAST	550	07,7472	0	7526	1	TC	LSTFULL	
2679					07,7473	0	7475	0	TC	+2	
2680	REF	3	LAST	551	07,7474	0	7526	1	TC	LSTFULL	
2681	REF	2	LAST	523	07,7475	0	3250	0	TC	RELDSPON	
2682	REF	9	LAST	551	07,7476	4	0636	0	CS	DSPLIST +2	
2683					07,7477	4	0000	0	COM		
2684	REF	20	LAST	550	07,7500	0	2127	1	ENDNVBSY TC	JOBSLEEP	
2685	REF	5	LAST	411			3323		SETLOC	NVSUBUSY +3	
2686	REF	298	LAST	550		3323	3	0001	0	RELDSP XCH	Q
2687	REF	1				3324	5	0113	1	TS	RELRET
2688	REF	8	LAST	508		3325	3	4335	0	CAF	NEG1
2689	REF	7	LAST	551		3326	6	0630	1	AD	GRABLOCK
2690	REF	435	LAST	551		3327	1	0000	0	CCS	A
2691						3330	0	3334	0	TC	+4
2692	REF	43	LAST	531		3331	0	3062	0	TC	CCSHOLE
2693	REF	1				3332	0	3351	0	TC	RELDSP2
2694	REF	2	LAST	551		3333	0	3351	0	TC	RELDSP2
2695	REF	204	LAST	537		3334	3	5501	0	CAF	ZERO
2696	REF	10	LAST	551		3335	3	0634	0	XCH	DSPLIST
2697	REF	11	LAST	551		3336	3	0635	1	XCH	DSPLIST +1
2698	REF	12	LAST	551		3337	3	0636	1	XCH	DSPLIST +2
2699	REF	7	LAST	551		3340	5	0114	0	TS	CADRTM
2700	REF	436	LAST	551		3341	1	0000	0	CCS	A
2701						3342	0	3344	1	TC	+2
2702	REF	3	LAST	551		3343	0	3351	0	TC	RELDSP2
2703	REF	8	LAST	551		3344	3	0114	0	XCH	CADRTM
2704						3345	2	0017	0	INHINT	
2705	REF	17	LAST	536		3346	0	2060	0	TC	JOBWAKE
2706	REF	190	LAST	550		3347	3	4516	1	CAF	ONE
2707	REF	8	LAST	551		3350	5	0630	1	TS	GRABLOCK
2708	REF	14	LAST	548		3351	4	4514	1	RELDSP2 CS	BIT3
2709	REF	41	LAST	548		3352	7	0011	0	MASK	OUT1
2710	REF	42	LAST	551		3353	5	0011	1	TS	OUT1
2711	REF	2	LAST	521		3354	0	3257	1	TC	DSBLOCK0
A2712											0 INTO DSPLOCK (BIT4 OF STATE) RELINT IS DONE IN DSPLOCK0.
2713	REF	2	LAST	551		3355	0	0113	1	TC	RELRET
2714	REF	299	LAST	551		3356	3	0001	0	RELDSP1 XCH	Q
2715	REF	3	LAST	551		3357	5	0113	1	TS	RELRET
2716						3360	2	0017	0	INHINT	
2717	REF	4	LAST	551		3361	0	3351	0	TC	RELDSP2
											SET DSPLOCK TO +0, RELDSP LIGHT OFF, NO LIST SEARCH

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2718	REF 300 LAST 551	3362 3 0001 0	FREEDSP	XCH	Q	
2719	REF 1	3363 5 0113 1		TS	FREERET	
2720		3364 2 0017 0		INHINT		
2721	REF 1	3365 3 3372 1		CAF	SHOTIME	
2722	REF 62 LAST 547	3366 0 2173 0		TC	WAITLIST	
2723	REF 1	3367 17501 0		CADR	FREEWAIT	
2724		3370 2 0016 1		RELINT		
2725	REF 2 LAST 552	3371 0 0113 1		TC	FREERET	
2726		3372 00257 1	SHOTIME	DEC	175	SET FOR 1.75 SECS FOR 501
2728	REF 1	07,7501		SETLOC	ENDNVBSY +1	
2729	REF 4 LAST 522	07,7501 3 2164 0	FREEWAIT	CAF	PRI031	CALLED BY T3RUPT
2730	REF 17 LAST 547	07,7502 0 2052 1		TC	NOVAC	
2731	REF 1	07,7503 17505 1		CADR	FREDSPDO	
2732	REF 48 LAST 547	07,7504 0 2256 1		TC	TASKOVER	
2733	REF 205 LAST 551	07,7505 3 5501 0	FREDSPDO	CAF	ZERO	CALLED BY EXECUTIVE
2734	REF 13 LAST 551	07,7506 3 0634 0		XCH	DSPLIST	
2735	REF 14 LAST 552	07,7507 3 0635 1		XCH	DSPLIST +1	
2736	REF 15 LAST 552	07,7510 3 0636 1		XCH	DSPLIST +2	
2737	REF 9 LAST 551	07,7511 5 0114 0		TS	CADRTEM	
2738	REF 437 LAST 551	07,7512 1 0000 0		CCS	A	
2739		07,7513 0 7515 1		TC	+2	
2740	REF 1	07,7514 0 7524 0		TC	LSTEMPTY	
2741	REF 10 LAST 552	07,7515 3 0114 0		XCH	CADRTEM	
2742		07,7516 2 0017 0		INHINT		
2743	REF 18 LAST 551	07,7517 0 2060 0		TC	JOBWAKE	
2744		07,7520 2 0016 1		RELINT		
2745	REF 191 LAST 551	07,7521 3 4516 1		CAF	ONE	SET FOR GRABBED CONDITION
2746	REF 9 LAST 551	07,7522 5 0630 1		TS	GRABLOCK	
2747	REF 73 LAST 537	07,7523 0 2124 1		TC	ENDOFJOB	
2748	REF 206 LAST 552	07,7524 3 5501 0	LSTEMPTY	CAF	ZERO	SET FOR FREE CONDITION
2749		07,7525 0 7522 0		TC	-3	
2750	REF 11 LAST 528	07,7526 0 3044 1	LSTFULL	TC	ABORT	
2751		07,7527 01206 1		OCT	01206	PINBALL WAITING LINE FULL.

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0001				32,6000		SETLOC	64000	
0002				32,6000	2 0017 0	LIFTOFF	INHINT	
0003	REF	9 LAST 522		32,6001	0 2677 0	TC	READTIME +1	SAVE TIME OF LIFTOFF
0004	REF	30 LAST 409		32,6002	4 0572 0	CS	RUPTSTOR	
0005	REF	1		32,6003	5 1462 0	TS	TLIFTOFF	
0006	REF	31 LAST 553		32,6004	4 0573 1	CS	RUPTSTOR +1	
0007	REF	2 LAST 553		32,6005	5 1463 1	TS	TLIFTOFF +1	
0008				32,6006	4 0000 0	COM		
0011	REF	1		32,6007	5 0666 1	TS	TBASE4	
0035	REF	4 LAST 356		32,6010	3 3533 1	CALL4.11 CAF	ELEVEN	
0036	REF	5 LAST 350		32,6011	0 2312 0	TC	NEWPHASE	
0037				32,6012	00004 0	OCT	00004	
0038	REF	438 LAST 552		32,6013	1 0000 0	CCS	A	
0039	REF	1		32,6014	0 6022 1	TC	SETLIFT	
0040	REF	2 LAST 553		32,6015	0 6022 1	TC	SETLIFT	
0041				32,6016	2 0017 0	INHINT		
0042	REF	1		32,6017	3 7567 1	CAF	2SEC	ALLOW 2 SECS FOR BACK-UP GRR COMPUTATION
0043	REF	63 LAST 552		32,6020	0 2173 0	TC	WAITLIST	
0044	REF	2 LAST 129		32,6021	64025 1	CADR	TARGETASK	
0045	REF	4 LAST 263		32,6022	0 3416 1	SETLIFT TC	FLAG1UP	
0046				32,6023	00002 0	OCT	00002	
0047	REF	1		32,6024	0 3151 1	TC	JAMTERM	FLUSH V75 GRR BACKUP.
0049	REF	1		32,6025	3 3557 0	TARGETASK CAF	THIRTY1	
00491	REF	6 LAST 553		32,6026	0 2312 0	TC	NEWPHASE	
00492				32,6027	00004 0	OCT	00004	
00493	REF	207 LAST 552		32,6030	3 5501 0	CAF	ZERO	
00494	REF	2 LAST 337		32,6031	5 0665 1	TS	TBASE3	
00496	REF	192 LAST 552		32,6032	3 4516 1	CAF	ONE	
00497	REF	7 LAST 553		32,6033	0 2312 0	TC	NEWPHASE	
00498				32,6034	00003 1	OCT	00003	
00499	REF	208 LAST 553		32,6035	3 5501 0	CAF	ZERO	
0050	REF	2 LAST 337		32,6036	6 0667 0	AD	TBASE5	
00506	REF	3 LAST 553		32,6037	6 1463 1	AD	TLIFTOFF +1	
00507	REF	7 LAST 387		32,6040	6 4520 1	AD	NEG1/2	
00508	REF	8 LAST 553		32,6041	6 4520 1	AD	NEG1/2	
00509	REF	3 LAST 553		32,6042	3 0667 0	XCH	TBASE5	
0051	REF	1		32,6043	3 3565 1	CAF	200DEC	
00511	REF	17 LAST 415		32,6044	5 0036 1	TS	TIME1	
00512	REF	1		32,6045	3 3560 1	CAF	THIRTY2	

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L 501 MISSION CONTROL PROGRAM

USER'S OWN PAGE NO. 2

00513	REF	8 LAST 553	32,6046	0 2312 0	TC	NEWPHASE	
00514			32,6047	00004 0	OCT	00004	
00515	REF	2 LAST 553	32,6050	4 3565 0	CS	200DEC	CALL ON BOOST MONITOR
00516	REF	2 LAST 125	32,6051	6 1563 0	AD	TROLL +1	
00517	REF	64 LAST 553	32,6052	0 2173 0	TC	WAITLIST	
00518	REF	2 LAST 125	32,6053	64066 0	CADR	MONITASK	
005194	REF	1	32,6054	3 2146 0	CAF	PRI012	
005195	REF	14 LAST 547	32,6055	0 2046 1	TC	FINDVAC	
0052	REF	1	32,6056	50000 1	CADR	TARGJOB	
00521	REF	209 LAST 553	32,6057	3 5501 0	CAF	ZERO	FINALLY ZERO TIME2
005215	REF	16 LAST 546	32,6060	5 0035 1	TS	TIME2	
00525	REF	49 LAST 552	32,6061	0 2256 1	TC	TASKOVER	
00526	REF	3 LAST 217	32,6062	3 2170 0	CAF	PRI035	
00527	REF	18 LAST 552	32,6063	0 2052 1	TC	NOVAC	
00528	REF	1	32,6064	11147 0	CADR	ENEMA	
00529	REF	3 LAST 553	32,6065	0 6030 1	TC	TARGETASK +3	
005295			24,6000		BANK	24	
0053	REF	149 LAST 535	24,6000	0 5654 0	TARGJOB	TC	COMMAND IMUCDU TO ATT. CONTROL MODE
0054	REF	2 LAST 244	24,6001	30223 1	CADR	IMUATTC	
00544	REF	18 LAST 418	24,6002	0 2362 1	TC	NEWMODE	SET MAJOR MODE TO BOOST ATTITUDE MONITOR
00546			24,6003	00011 1	OCT	00011	
0055	REF	1	24,6004	0 3516 0	TC	SETHETAD	FORCE THETAD,+1,+2 TO EQUAL CDUX,Y,Z
0056	REF	52 LAST 469	24,6005	0 4000 0	TC	INTPRET	
0057			24,6006	66776 1	DSJ	0	TARGET VECTORS INITIALLY REFERENCED TO
0058	REF	4 LAST 553	24,6007	01463 1		TLIFTOFF	GRR. WILL NOW UPDATE THEM TO LIFT-OFF
0059	REF	4 LAST 353	24,6010	01467 0		TIME2GR	
0060	REF	2 LAST 353	24,6011	33145 1	STORE	DTEAROT	
0061			24,6012	45176 0	DMOVE	0	
0062	REF	1	24,6013	01630 0		TPACIF1	
0063	REF	1	24,6014	33537 0	STORE	TPACIFC	
0064			24,6015	45176 0	DMOVE	0	
0065	REF	1	24,6016	01620 1		TATLAN1	
0066	REF	1	24,6017	33527 1	STORE	TATLANT	

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USER'S OWN PAGE NO. 3

0069			24,6020	75176 0		VMOVE	0
0070	REF	1	24,6021	01632 1			RTPACIF1
0071	REF	1	24,6022	33115 1		STORE	RTINIT
0072			24,6023	76776 0		ITC	0
0073	REF	1	24,6024	13450 1			EARROT1
0074			24,6025	47576 0		NOLOD	0
0075	REF	1	24,6026	33541 1		STORE	RTPACIFC
0076			24,6027	75176 0		VMOVE	0
0077	REF	1	24,6030	01622 0			RTATLAN1
0078	REF	2 LAST 555	24,6031	33115 1		STORE	RTINIT
0079			24,6032	76776 0		ITC	0
0080	REF	2 LAST 555	24,6033	13450 1			EARROT1
0081			24,6034	47576 0		NOLOD	0
0082	REF	1	24,6035	33531 0		STORE	RTATLANT
0083			24,6036	77576 0		EXIT	0
0084	REF	150 LAST 554	24,6037	0 5654 0	TARGET	TC	BANKCALL
0085	REF	29 LAST 457	24,6040	30331 0		CADR	IMUSTALL
0086	REF	2 LAST 221	24,6041	0 3066 1		TC	CURTAINS
0091	REF	193 LAST 553	24,6042	4 4516 0		CS	ONE
0092	REF	9 LAST 554	24,6043	0 2312 0		TC	NEWPHASE
0093			24,6044	00004 0		OCT	00004
0094	REF	74 LAST 552	24,6045	0 2124 1		TC	ENDOFJOB

WAIT FOR COMPLETION OF MODE SWITCH
TRAP IF INCOMPLETE

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L 501 MISSION CONTROL PROGRAM

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00945		32,6066		BANK 32	
0095	REF 3 LAST 207	32,6066	3 2143 0	MONITASK	CAF PRI05
0096	REF 15 LAST 554	32,6067	0 2046 1	TC	FINDVAC
0097	REF 2 LAST 128	32,6070	64074 0	CADR	MONITJOB
0098	REF 5 LAST 553	32,6071	0 3416 1	TC	FLAG1UP SET MONIT FLAG
0099		32,6072	00040 0	MONITMSK OCT	00040
0100	REF 50 LAST 554	32,6073	0 2256 1	TC	TASKOVER
0101	REF 5 LAST 341	32,6074	0 2276 0	MONITJOB TC	PHASCHNG
0102		32,6075	03203 0	OCT	03203
0103	REF 53 LAST 554	32,6076	0 4000 0	TC	INTPRET
0104		32,6077	76575 1	RTB	1 FORM TIME SINCE START OF MONITOR
0105		32,6100	66776 1	DSJ	
0106	REF 3 LAST 437	32,6101	20253 1		LOADTIME
0107	REF 1	32,6102	01565 0		TPITCH
0108	REF 1	32,6103	33571 1	STORE	TMONITOR SCALED AT 2(+28) CS
01081		32,6104	47574 1	NOLOD	2 TEST IF TIME TO START PITCH MONITOR
01082		32,6105	43605 0	BPL	LODON
01083		32,6106	45176 0	DMOVE	
01084		32,6107	24113 1		+3
01085	REF 3 LAST 319	32,6110	07227 1		DPZERO NO
01086	REF 2 LAST 556	32,6111	33571 1	STORE	TMONITOR
0109		32,6112	47573 0	PITCH1 NOLOD	3 TEST IF TIME TO STOP MONITOR
0110		32,6113	66756 0	DSJ	BMN
0111		32,6114	41423 1	LODON	DMOVE
0112		32,6115	42576 0	SWITCH	
0113	REF 1	32,6116	01567 1		TENDPTCH
0114		32,6117	24124 0		+4
0115	REF 2 LAST 556	32,6120	01567 1		TENDPTCH IF IT IS, SET TMONITOR TO MAX AND REMOVE
0116	REF 1	32,6121	00033 1		MONITFLG MONIT FLAG
0117	REF 3 LAST 556	32,6122	33571 1	STORE	TMONITOR
0118		32,6123	45174 1	DMOVE	2 DO SIGN AGREE AND RESCALE TO 2(+14) CS
0119		32,6124	76516 1	RTB	TSLT
0120		32,6125	76516 1	RTB	TSLT
0121	REF 4 LAST 556	32,6126	01571 0		TMONITOR
0122	REF 8 LAST 453	32,6127	20404 0		SGNAGREE
0123		32,6130	00017 1		14D
01231	REF 1	32,6131	24246 1		POLYENT1 SOLVE PITCH POLYNOMIAL
01232		32,6132	00005 1		4
01233		32,6133	32025 1	STORE	20D CHI SCALED AT 1 REV.

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0124			32,6134	57176 0	SIN 0
0126			32,6135	00025 0	20D
01265			32,6136	45176 0	DMOVE 0
0127	REF	4 LAST 556	32,6137	07227 1	DPZERO
0128			32,6140	55175 1	COS 1
0129			32,6141	41176 1	VDEF
0130			32,6142	00025 0	20D
0131			32,6143	32027 0	STORE 22D
UNIT VECTOR ALONG VEHICLE ROLL AXIS					
0132			32,6144	47576 0	NOLOD 0
0133	REF	1	32,6145	33411 0	STORE XSCD
0134			32,6146	45176 0	DMOVE 0
0135	REF	2 LAST 557	32,6147	01415 0	XSCD +4
0136			32,6150	32027 0	STORE 22D
FORM VECTOR (XSCD +4, 0, -XSCD) AT 22D					
0138			32,6151	47176 1	COMP 0
0139	REF	3 LAST 557	32,6152	01411 1	XSCD
0140			32,6153	32033 0	STORE 26D
0141			32,6154	76572 0	ROLLER RTB 4
01415			32,6155	66712 0	DSJ DDV
0142			32,6156	66756 0	DSJ BMN
0143			32,6157	41423 1	LODON DMOVE
0144			32,6160	76576 1	RTB
01445	REF	4 LAST 556	32,6161	20253 1	LOADTIME
0145	REF	3 LAST 554	32,6162	01563 0	TROLL
0146	REF	1	32,6163	01701 0	1/RLLRTE
0147	REF	1	32,6164	01703 1	MAXROLL
0148			32,6165	24171 0	+3
0149	REF	5 LAST 557	32,6166	07227 1	DPZERO
0150	REF	3 LAST 452	32,6167	20265 1	FRESHPD
IF EXCEEDS MAX VALUE, SET ROLL ATTITUDE TO ZERO					
0151			32,6170	47576 0	NOLOD 0
0152			32,6171	32025 1	STORE 20D
ROLL ANGLE SCALED AT 1 REV.					
0153			32,6172	47575 0	NOLOD 1
0154			32,6173	57176 0	SIN
0155			32,6174	32023 1	STORE 18D
0156			32,6175	47575 0	NOLOD 1
01565			32,6176	63766 0	TSLT VXSC
0157			32,6177	00002 0	1
0158			32,6200	00027 1	22D
0159	REF	1	32,6201	33417 0	STORE YSCD
0160			32,6202	55175 1	COS 1
0161			32,6203	47176 1	COMP

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0162			32,6204	00025 0		20D	
0163	REF	2 LAST 557	32,6205	33421 0	STORE	YSCD +2	
0164			32,6206	47574 1	NOLOD	2	
0165			32,6207	47166 0	COMP	VXSC	
0166			32,6210	44776 1	VSLT		
0167			32,6211	00027 1		22D	
0168			32,6212	00002 0		1	
0169	REF	1	32,6213	33425 1	STORE	ZSCD	
0170			32,6214	45176 0	DMOVE	0	
0171			32,6215	00023 0		18D	
0172	REF	2 LAST 558	32,6216	33427 0	STORE	ZSCD +2	
0173			32,6217	76776 0	ITC	0	RESOLVE INTO NB COORDS.
0174	REF	1	32,6220	12167 1		CALCSCNB	
0175			32,6221	76776 0	ITC	0	EXTRACT EULER ANGLES FROM XNB MATRIX
0176	REF	1	32,6222	12072 1		CALCCDU	
0177			32,6223	47576 0	NOLOD	0	STORE THE ANGLES
0178	REF	20 LAST 541	32,6224	32701 0	STORE	THETAD	
017802			32,6225	77576 0	EXIT	0	
017804	REF	16 LAST 414	32,6226	3 4511 0	CAF	BIT6	TEST IF MONIT FLAG SET
017806	REF	11 LAST 337	32,6227	7 0646 1	MASK	FLAGWRD1	
017808	REF	439 LAST 553	32,6230	1 0000 0	CCS	A	
01781	REF	3 LAST 556	32,6231	0 6074 1	TC	MONITJOB	IT IS. RECYCLE MONITJOB
017812			32,6232	2 0017 0	INHINT		CALL TUMBLE MONITOR IN TTUMON SECS
017814	REF	2 LAST 125	32,6233	4 1572 1	CS	TTUMON	
017816			32,6234	4 0000 0	COM		
017826	REF	65 LAST 554	32,6235	0 2173 0	TC	WAITLIST	
017828	REF	3 LAST 128	32,6236	64250 1	CADR	TUMBTSK1	
017829	REF	18 LAST 553	32,6237	4 0036 0	CS	TIME1	
01783	REF	3 LAST 553	32,6240	5 0665 1	TS	TBASE3	
017831	REF	85 LAST 551	32,6241	3 5503 1	CAF	TWO	
017832	REF	10 LAST 555	32,6242	0 2312 0	TC	NEWPHASE	
017834			32,6243	00003 1	OCT	00003	
017836	REF	75 LAST 555	32,6244	0 2124 1	TC	ENDOFJOB	
017838	REF	1	32,6245	3 3534 0	POLYENT1 CAF	TWELVE	RTB HERE PRIOR TO ENTERING ERASABLE FOR
01784	REF	1	32,6246	5 1574 0	TS	POLYORDR	POLYNOMIAL
017842	REF	1	32,6247	0 1573 1	TC	POLYENTR	

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0179	REF	1		32,6250	3 3553 1	TUMBTSK1	CAF	TWENTY7	
01791	REF	11	LAST 558	32,6251	0 2312 0		TC	NEWPHASE	
01792				32,6252	00003 1		OCT	3	
01793	REF	1		32,6253	3 2155 1		CAF	PRI022	
0180	REF	16	LAST 556	32,6254	0 2046 1		TC	FINDVAC	
0181	REF	1		32,6255	64257 0		CADR	TUMBJOB1	
0182	REF	1		32,6256	0 6325 0		TC	RESET1	
0183	REF	151	LAST 555	32,6257	0 5654 0	TUMBJOB1	TC	BANKCALL	SWITCH IMUCDU MODE TO FINE ALIGN
0184	REF	1		32,6260	30163 0		CADR	IMUFINNW	
0185	REF	152	LAST 559	32,6261	0 5654 0		TC	BANKCALL	WAIT FOR COMPLETION OF MODE SWITCH
0186	REF	30	LAST 555	32,6262	30331 0		CADR	IMUSTALL	
0187	REF	3	LAST 555	32,6263	0 3066 1		TC	CURTAINS	
0188	REF	19	LAST 554	32,6264	0 2362 1		TC	NEWMODE	SET MAJOR MODE TO TUMBLE MONITOR
0189				32,6265	00014 1		OCT	00014	
01891	REF	54	LAST 556	32,6266	0 4000 0		TC	INTPRET	...NO 01407 ALARMS, PLEASE....
01892				32,6267	75575 1		AXT,1	1	
01893				32,6270	76776 0		ITC		
01894				32,6271	00007 0			6	
01895	REF	1		32,6272	12001 0			CDUTRIG	
01896				32,6273	75176 0		VMOVE	0	
01897	REF	1		32,6274	01315 1			CDUTEMP	
01898	REF	1		32,6275	33345 0		STORE	DUPCDU	
01899				32,6276	77576 0		EXIT	0	
0190	REF	76	LAST 558	32,6277	0 2124 1		TC	ENDOFJOB	
0191	REF	2	LAST 559	32,6300	3 2155 1	TUMBTASK	CAF	PRI022	
0192	REF	17	LAST 559	32,6301	0 2046 1		TC	FINDVAC	
0193	REF	1		32,6302	50046 0		CADR	TUMBJOB	
0194	REF	23	LAST 529	32,6303	3 4516 1		CAF	BIT1	TEST IF TUMBLE FLAG SET
0195	REF	12	LAST 558	32,6304	7 0646 1		MASK	FLAGWRD1	
0196	REF	440	LAST 558	32,6305	1 0000 0		CCS	A	
0197	REF	2	LAST 559	32,6306	0 6325 0		TC	RESET1	IT IS. CONTINUE TO MONITOR
0198	REF	3	LAST 156	32,6307	4 0647 0		CS	FLAGWRD2	TEST IF BURN IS TUMBLE ARREST (I.E. HAS
0199	REF	24	LAST 559	32,6310	7 4516 0		MASK	BIT1	CORRECTIVE ACTION STARTED)
0200	REF	441	LAST 559	32,6311	1 0000 0		CCS	A	
0201	REF	1		32,6312	0 6321 1		TC	TUMTEST1	IT HAS NOT

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0202	REF	43	LAST	551	32,6313	4	0011	0	CS	OUT1	IT HAS. TEST IF ENGINE ON YET. IF NOT, WAIT BEFORE TURNING IT OFF AGAIN	
0203	REF	8	LAST	289	32,6314	7	4502	0	MASK	BIT13		
0204	REF	442	LAST	559	32,6315	1	0000	0	CCS	A		
0205	REF	3	LAST	559	32,6316	0	6325	0	TC	RESET1		
0206	REF	25	LAST	550	32,6317	0	5720	1	TC	POSTJUMP	LEAP TO CUT SPS ENGINE	
0207	REF	4	LAST	131	32,6320		64710	0	CADR	ENGINOFF		
0208	REF	1			32,6321	3	6335	1	TUMTEST1	CAF	NOTUMASK	TEST IF NEXT BURN HAS BEEN SET
0209	REF	4	LAST	559	32,6322	7	0647	0	MASK	FLAGWRD2		
0210	REF	443	LAST	560	32,6323	1	0000	0	CCS	A		
0211	REF	1			32,6324	0	6331	0	TC	TASK3OUT		
0212	REF	1			32,6325	3	6677	1	RESET1	CAF	1SEC32	RECALL IN 1 SEC
0213	REF	66	LAST	558	32,6326	0	2173	0	TC	WAITLIST		
0214	REF	1			32,6327		64300	0	CADR	TUMBTASK		
0215	REF	51	LAST	556	32,6330	0	2256	1	TC	TASKOVER		
0216	REF	194	LAST	555	32,6331	4	4516	0	TASK3OUT	CS	ONE	
0217	REF	12	LAST	559	32,6332	0	2312	0	TC	NEWPHASE		
0218					32,6333		00003	1	OCT	00003		
0219	REF	52	LAST	560	32,6334	0	2256	1	TC	TASKOVER	IT HAS. KILL TUMBLE MONITOR	
0220					32,6335		00016	0	NOTUMASK	OCT	00016	(OR OF SPS1, ABRT, TABT)

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02205				24,6046		BANK	24	
0221	REF	1		24,6046	3 6111 0	TUMBJOB	CAF	NOTUMSK1
0222	REF	5	LAST 560	24,6047	7 0647 0		MASK	FLAGWRD2
0223	REF	444	LAST 560	24,6050	1 0000 0		CCS	A
0224	REF	77	LAST 559	24,6051	0 2124 1		TC	ENDOFJOB
0227	REF	55	LAST 559	24,6052	0 4000 0		TC	INTPRET
0228				24,6053	75176 0		VMOVE	0
0229	REF	2	LAST 559	24,6054	01345 1			SAVE PRESENT CDUX,Y,Z
0230	REF	1		24,6055	33323 0		STORE	CDUBUF
0231				24,6056	75575 1		AXT,1	1
0232				24,6057	76776 0		ITC	
0233				24,6060	00007 0			6
0234	REF	2	LAST 559	24,6061	12001 0			CDUTRIG
0235				24,6062	75176 0		VMOVE	0
0236	REF	2	LAST 559	24,6063	01315 1			CDUTEMP
0237	REF	3	LAST 561	24,6064	33345 0		STORE	DUPCDU
0238				24,6065	47575 0		NOLOD	1
0239				24,6066	74765 0		VSJ	AXT,1
0240	REF	2	LAST 561	24,6067	01323 1			CDUBUF
0241				24,6070	00007 0			6
0242	REF	3	LAST 561	24,6071	33315 0		STORE	CDUTEMP
0243				24,6072	76776 0		ITC	0
0244	REF	1		24,6073	12041 1			SINCOS
0245				24,6074	71174 0		ABVAL	2
0246				24,6075	66756 0		DSJ	BMN
0247				24,6076	77576 0		EXIT	
0248	REF	1		24,6077	01331 1			SINCDU
0249	REF	1		24,6100	10113 0			CRIT
0250	REF	1		24,6101	10106 1			NOTUMBLE
0251	REF	6	LAST 556	24,6102	0 3416 1		TC	FLAG1UP
0252				24,6103	00001 0		OCT	00001
0253	REF	78	LAST 561	24,6104	0 2124 1		TC	ENDOFJOB
0254				24,6105	77576 0	NOTUMBLE	EXIT	0
0255	REF	4	LAST 261	24,6106	0 3430 0		TC	FLAG1DWN
0256				24,6107	00001 0		OCT	00001
0257	REF	79	LAST 561	24,6110	0 2124 1		TC	ENDOFJOB
02575				24,6111	00016 0	NOTUMSK1	OCT	16

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0258
C025824,6112
24,611300262 1 CRIT
25271 1

2DEC 0.010905

SIN(5DEG/2) SCALED AT 2(+2)

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02585

32,6336

BANK 32

0259	REF	19	LAST	558	32,6336	4	0036	0	S4BSMSEP	CS	TIME1	BRANCH HERE ON RECEIPT OF S4B/CSM SEP
0260	REF	2	LAST	553	32,6337	5	0666	1		TS	TBASE4	
02604	REF	5	LAST	561	32,6340	0	3430	0		TC	FLAG1DWN) 2 RESET UPDAT FLAG
02606					32,6341		20000	0		OCT	20000	
0261	REF	3	LAST	260	32,6342	0	3373	0		TC	RELAYON	SET SCS +X TRANS, ATTITUDE CONTROL MODE, GIMBAL MOT POWER DISCRETES (C27,23,30)
0262					32,6343		40221	1		OCT	40221	
0263	REF	25	LAST	559	32,6344	3	4516	1		CAF	BIT1	TEST IF TUMB FLAG SET
0264	REF	13	LAST	559	32,6345	7	0646	1		MASK	FLAGWRD1	
0265	REF	445	LAST	561	32,6346	1	0000	0		CCS	A	
0266	REF	1			32,6347	0	6462	1		TC	SETUMB2	
0267	REF	7	LAST	561	32,6350	0	3416	1		TC	FLAG1UP	SET INTP FLAG
0268					32,6351		01000	0	INTPMASK	OCT	01000	
0269	REF	6	LAST	556	32,6352	0	2276	0		TC	PHASCHNG	
0270					32,6353		01404	0		OCT	01404	
0271					32,6354	2	0017	0		INHINT		WAIT 1.7 SECS FOR RECEIPT OF ABORT SIG.
0272	REF	1			32,6355	3	6505	1		CAF	1.7SEC	
0273	REF	67	LAST	560	32,6356	0	2173	0		TC	WAITLIST	
0274	REF	2	LAST	129	32,6357		64374	0		CADR	ABRTWAIT	
02741	REF	22	LAST	453	32,6360	0	3302	0	TRYGRAB	TC	GRABDSP	TRY TO GRAB DISPLAY ALREADY GRABBED. FLUSH OUT GRABBER
02742	REF	1			32,6361	0	6366	1		TC	CLEANOUT	
02743	REF	26	LAST	418	32,6362	0	3362	0		TC	FREEDSP	WE HAVE IT. AND LET IT GO
0275	REF	8	LAST	563	32,6363	0	3416	1	SETS4SEP	TC	FLAG1UP	SET S4BSM FLAG
0276					32,6364		00200	0		OCT	00200	
0277	REF	80	LAST	561	32,6365	0	2124	1		TC	ENDOFJOB	
02771					32,6366	2	0017	0	CLEANOUT	INHINT		MAKE HIGH PRIO JOB TO FLUSH OUT PINBALL
02772	REF	4	LAST	554	32,6367	3	2170	0		CAF	PRI035	
02773	REF	19	LAST	554	32,6370	0	2052	1		TC	NOVAC	
02774	REF	2	LAST	554	32,6371		11147	0		CADR	ENEMA	
02775					32,6372	2	0016	1		RELINT		
02776	REF	2	LAST	129	32,6373	0	6363	1		TC	SETS4SEP	
0278	REF	4	LAST	259	32,6374	3	2160	1	ABRTWAIT	CAF	PRI025	CONTINUE WITH SAME PRIORITY AS S4BSMSEP
0279	REF	20	LAST	563	32,6375	0	2052	1		TC	NOVAC	
0280	REF	1			32,6376		64400	1		CADR	ABORTEST	

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0281	REF	53 LAST 560	32,6377	0 2256 1		TC	TASKOVER	
0282	REF	195 LAST 560	32,6400	3 4516 1	ABORTTEST	CAF	ONE	SET VGCNTR FOR 2 PASSES THRU CALCVGB
0283	REF	1	32,6401	5 1446 0		TS	VGCNTR	
02832	REF	6 LAST 563	32,6402	0 3430 0		TC	FLAG1DWN	RESET UPDAT FLAG
02834			32,6403	20000 0		OCT	20000	
0284	REF	15 LAST 526	32,6404	3 4501 1		CAF	BIT14	TEST IF ABORT SIGNAL RECEIVED
0285	REF	28 LAST 263	32,6405	7 0645 1		MASK	STATE	
0286	REF	446 LAST 563	32,6406	1 0000 0		CCS	A	
0287	REF	1	32,6407	0 6427 0		TC	SETABORT	IT WAS. BRANCH TO ABORT
0288			32,6410	2 0017 0		INHINT		
0289	REF	1	32,6411	3 6504 0		CAF	8.3SEC	SET CALL TO TURN OFF +X 10 SEC AFTER SEP
0290	REF	68 LAST 563	32,6412	0 2173 0		TC	WAITLIST	
0291	REF	2 LAST 130	32,6413	64663 0		CADR	PLUSXOFF	
0292			32,6414	2 0016 1		RELINT		
0293	REF	1	32,6415	0 3504 0		TC	SETBRNSW	SET BURN TO SPS1
0294			32,6416	00010 0	SPS1MASK	OCT	00010	
029402	REF	1	32,6417	3 6426 1		CAF	SPS1LOC	SET LOCATION FOR NOMINAL SPS1 VR COMP
029404	REF	1	32,6420	5 1470 0		TS	VRCADR	
02942	REF	7 LAST 563	32,6421	0 2276 0		TC	PHASCHNG	
02944			32,6422	02504 1		OCT	02504	
0299	REF	20 LAST 559	32,6423	0 2362 1	RED04.21	TC	NEWMODE	SET MAJOR MODE TO PRE-SPS1
0300			32,6424	00031 0		OCT	00031	
0303	REF	2 LAST 553	32,6425	0 3151 1		TC	JAMTERM	FLUSH V75 S4BSMSEP BACKUP.
0304	REF	1	32,6426	52454 0	SPS1LOC	CADR	501SPS1	
03042	REF	2 LAST 564	32,6427	0 3504 0	SETABORT	TC	SETBRNSW	SET BURN TO ABORT
03044			32,6430	00002 0		OCT	00002	
0305	REF	8 LAST 564	32,6431	0 2276 0		TC	PHASCHNG	
0306			32,6432	02004 1		OCT	02004	
0307			32,6433	2 0017 0		INHINT		
0308	REF	1	32,6434	3 6510 0		CAF	3.8SEC	START ENGINE IN 4.3 SECS
0309	REF	69 LAST 564	32,6435	0 2173 0		TC	WAITLIST	
0310	REF	6 LAST 130	32,6436	64527 0		CADR	ATTCTNOFF	
0311			32,6437	2 0016 1		RELINT		
0312	REF	153 LAST 559	32,6440	0 5654 0	RED04.16	TC	BANKCALL	SET IMU TO ATT. CONTROL MODE
0313	REF	3 LAST 554	32,6441	30223 1		CADR	IMUATTC	

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0314	REF	2 LAST 554	32,6442	0 3516 0	TC	SETHETAD	SET THETAD, +1, +2 TO AGREE WITH CDUX, Y, Z			
0315	REF	1	32,6443	3 6461 1	CAF	ABORTLOC	SET LOCATION FOR ABORT VR COMPUTATIONS			
0316	REF	2 LAST 564	32,6444	5 1470 0	TS	VRCADR				
0317	REF	86 LAST 558	32,6445	3 5503 1	CAF	TWO	SET VGCNTR FOR THREE PASSES THROUGH			
0318	REF	2 LAST 564	32,6446	5 1446 0	TS	VGCNTR	CALCVGB BEFORE ISSUING STEER COMMANDS			
0319	REF	1	32,6447	3 7655 0	CAF	35DEG	SET THRUST ANGLE TO 35 DEG ABOVE HORIZON			
0320	REF	1	32,6450	5 1442 1	TS	LOOKANG				
0321	REF	9 LAST 563	32,6451	0 3416 1	TC	FLAG1UP	SET STEER FLAG FOR ABORT STEERING			
0322			32,6452	00010 0	OCT	00010				
0323	REF	21 LAST 564	32,6453	0 2362 1	TC	NEWMODE	SET MAJOR MODE TO ABORT BURN			
0324			32,6454	00073 0	OCT	00073				
0325	REF	154 LAST 564	32,6455	0 5654 0	TC	BANKCALL	WAIT FOR MODE SWITCH TO COMPLETE			
0326	REF	31 LAST 559	32,6456	30331 0	CADR	IMUSTALL				
0327	REF	4 LAST 559	32,6457	0 3066 1	TC	CURTAINS	CATCH-ALL FOR FAILURE TO IMU MODE SWITCH			
0328	REF	3 LAST 564	32,6460	0 3151 1	TC	JAMTERM	FLUSH OUT V75			
0329	REF	1	32,6461	52530 0	ABORTLOC	CADR	501ABORT			
0330	REF	3 LAST 564	32,6462	0 3504 0	SETUMB2	TC	SETBRNSW	SET BURN TO TUMBLE ARREST		
0331			32,6463	00001 0	ARRSTMSK	OCT	00001			
0332	REF	1	32,6464	3 3537 0	CAF	FIFTN				
0333	REF	13 LAST 560	32,6465	0 2312 0	TC	NEWPHASE				
0334			32,6466	00004 0	OCT	4				
0335			32,6467	2 0017 0	INHINT					
0336	REF	1	32,6470	3 6700 0	CAF	2.5SEC	START ENGINE AT 3.0 SECS AFTER SEP.			
0337	REF	70 LAST 564	32,6471	0 2173 0	TC	WAITLIST	SEPARATION			
0338	REF	7 LAST 564	32,6472	64527 0	CADR	ATTNOFF				
0339			32,6473	2 0016 1	RELINT					
0340	REF	22 LAST 565	32,6474	0 2362 1	TC	NEWMODE	SET MAJOR MODE TO TUMBLE ARREST BURN			
0341			32,6475	00074 1	OCT	00074				
0342	REF	1	32,6476	0 6360 1	TC	TRYGRAB				
0347	REF	1	32,6477	0 3462 1	ABORTRPT	TC	STATEUP	COME HERE ON RECEIPT OF UPLINK ABORT		
0348			32,6500	20000 0	OCT	20000	VERB, NOUN. SET THE ABORT SIGNAL			
0349	REF	4 LAST 563	32,6501	0 3373 0	TC	RELAYON	SET SCS BACKUP ABORT DISCRETE (C33)			
0350			32,6502	42000 1	OCT	42000				
0351	REF	81 LAST 563	32,6503	0 2124 1	TC	ENDOFJOB				

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0352	32,6504	01476 0	8.3SEC	DEC	830
0353	32,6505	00252 1	1.7SEC	DEC	170
0354	32,6506	22244 0	93.8SEC	DEC	9380
03545	32,6507	02032 1	10.5SEC	DEC	1050
0355	32,6510	00574 1	3.8SEC	DEC	380

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Line	REF	Count	Label	Address	Value	Mode	Action	Discrete
0360	REF	5	LAST 565	32,6511	0 3373 0	GIMPOWON	TC	RELAYON
0361				32,6512	40200 1		OCT	40200
0362	REF	1		32,6513	3 3550 1		CAF	TWENTY4
0363	REF	14	LAST 565	32,6514	0 2312 0		TC	NEWPHASE
0364				32,6515	00004 0		OCT	00004
03643	REF	20	LAST 563	32,6516	4 0036 0		CS	TIME1
03646	REF	3	LAST 563	32,6517	5 0666 1		TS	TBASE4
0365	REF	1		32,6520	3 3551 0		CAF	TWENTY5
0366	REF	15	LAST 567	32,6521	0 2312 0		TC	NEWPHASE
0367				32,6522	00004 0		OCT	00004
0368	REF	1		32,6523	3 7151 0		CAF	11.5SEC
0369	REF	71	LAST 565	32,6524	0 2173 0		TC	WAITLIST
0370	REF	8	LAST 565	32,6525	64527 0		CADR	ATTCTNOFF
0371	REF	54	LAST 564	32,6526	0 2256 1		TC	TASKOVER
0372	REF	1		32,6527	3 3542 1	ATTCTNOFF	CAF	EIGHTN
0373	REF	16	LAST 567	32,6530	0 2312 0		TC	NEWPHASE
0374				32,6531	00004 0		OCT	00004
0375	REF	21	LAST 567	32,6532	4 0036 0		CS	TIME1
0376	REF	4	LAST 567	32,6533	5 0666 1		TS	TBASE4
03763	REF	2	LAST 259	32,6534	0 3405 0		TC	RELAYOFF
03766				32,6535	40001 1		OCT	40001
0377	REF	3	LAST 339	32,6536	3 3543 0		CAF	NINETEEN
0378	REF	17	LAST 567	32,6537	0 2312 0		TC	NEWPHASE
0379				32,6540	00004 0		OCT	00004
0382	REF	1		32,6541	3 6676 0		CAF	0.25SEC
0383	REF	72	LAST 567	32,6542	0 2173 0		TC	WAITLIST
0384	REF	2	LAST 130	32,6543	64545 1		CADR	DVMODEON
0385	REF	55	LAST 567	32,6544	0 2256 1		TC	TASKOVER
0390	REF	6	LAST 567	32,6545	0 3373 0	DVMODEON	TC	RELAYON
0391				32,6546	40002 1		OCT	40002
0392	REF	2	LAST 337	32,6547	3 3544 1		CAF	TWENTY0
0393	REF	18	LAST 567	32,6550	0 2312 0		TC	NEWPHASE
0394				32,6551	00004 0		OCT	00004
0395	REF	2	LAST 567	32,6552	3 6676 0		CAF	0.25SEC
0396	REF	73	LAST 567	32,6553	0 2173 0		TC	WAITLIST
0397	REF	2	LAST 130	32,6554	64562 1		CADR	ENGINEON

SET SCS GMP DISCRETE (C30)

REMOVE SCS ATT. CONTROL DISCRETE (C23)

SET SCS DV MODE DISCRETE (C24)

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0398	REF	56 LAST 567	32,6555	0 2256 1	TC	TASKOVER	
0399	REF	196 LAST 564	32,6556	4 4516 0	TASK4OUT CS	ONE	
0400	REF	19 LAST 567	32,6557	0 2312 0	TC	NEWPHASE	
0401			32,6560	00004 0	OCT	00004	
0402	REF	57 LAST 568	32,6561	0 2256 1	TC	TASKOVER	
0407	REF	9 LAST 560	32,6562	4 4502 0	ENGINEON CS	BIT13	SET BIT13, OUT1 TO 1 (ENGINE ON)
0408	REF	1	32,6563	5 1447 1	TS	DVCNTR	MUST BE NEGATIVE INITIALLY
0409	REF	44 LAST 560	32,6564	7 0011 0	MASK	OUT1	
0410	REF	10 LAST 568	32,6565	6 4502 1	AD	BIT13	
0411	REF	45 LAST 568	32,6566	5 0011 1	TS	OUT1	
0412	REF	10 LAST 553	32,6567	0 2677 0	TC	READTIME +1	
0413	REF	32 LAST 553	32,6570	4 0572 0	CS	RUPTSTOR	
0414	REF	1	32,6571	5 1462 0	TS	TENGON	
0415	REF	33 LAST 568	32,6572	4 0573 1	CS	RUPTSTOR +1	
0416	REF	2 LAST 568	32,6573	5 1463 1	TS	TENGON +1	
0417	REF	10 LAST 565	32,6574	0 3416 1	TC	FLAG1UP	SET DVMON, STEER FLAGS
0418			32,6575	00030 1	OCT	00030	
0419	REF	2 LAST 567	32,6576	3 3550 1	CAF	TWENTY4	SEE IF THIS EITHER A SPS1 OR SPS2 BURN
0420	REF	6 LAST 561	32,6577	7 0647 0	MASK	FLAGWRD2	
0421	REF	447 LAST 564	32,6600	1 0000 0	CCS	A	
04215			32,6601	0 6603 1	TC	+2	YES
0422	REF	1	32,6602	0 6636 1	TC	TUMTEST2	NO
04281	REF	1	32,6603	1 0651 1	CCS	PHASE2	TEST FOR PHASE2 VALUE.
04282	REF	4 LAST 428	32,6604	6 4341 0	AD	NEG3	WAS IT GREATER THAN 4 ORIGINALLY...
04283	REF	448 LAST 568	32,6605	1 0000 0	CCS	A	TEST NEW SUM.
0429	REF	1	32,6606	0 6642 1	TC	ROLLTASK -3	
04291	REF	2 LAST 568	32,6607	0 6642 1	TC	ROLLTASK -3	GOES UNLESS PHASE2 WERE +1,2,3, OR 4.
04292			32,6610	0 6611 1	TC	+1	1,2 OR 3 FALL IN HERE
04293	REF	197 LAST 568	32,6611	4 4516 0	CS	ONE	+4 COMES HERE.
04294	REF	20 LAST 568	32,6612	0 2312 0	TC	NEWPHASE	IN WHICH CASES, WE MAKE GROUP 2 INACTIVE
04295			32,6613	00002 0	OCT	2	
04296	REF	5 LAST 563	32,6614	3 2170 0	CAF	PRI035	AND THEN FLUSH OUT EVERYTHING.
04297	REF	21 LAST 563	32,6615	0 2052 1	TC	NOVAC	
04298	REF	3 LAST 563	32,6616	11147 0	CADR	ENEMA	FORCE A PROGRAMMED RESTART
04299	REF	3 LAST 568	32,6617	0 6642 1	TC	ROLLTASK -3	
0430	REF	1	32,6620	3 6707 1	30R4TEST CAF	SPS34MSK	
0431	REF	7 LAST 568	32,6621	7 0647 0	MASK	FLAGWRD2	

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0432	REF 449 LAST 568	32,6622	1 0000 0	CCS	A	
0433		32,6623	0 6625 0	TC	+2	
0434	REF 2 LAST 568	32,6624	0 6636 1	TC	TUMTEST2	IT IS NOT
0435	REF 1	32,6625	3 3547 1	CAF	TWENTY3	
0436	REF 21 LAST 568	32,6626	0 2312 0	TC	NEWPHASE	
0437		32,6627	00004 0	OCT	00004	
0438	REF 1	32,6630	3 6701 1	CAF	3SEC	SHUT ENGINE DOWN IN 3 SECS
0439	REF 74 LAST 567	32,6631	0 2173 0	TC	WAITLIST	
0440	REF 5 LAST 560	32,6632	64710 0	CADR	ENGINEOFF	
0441	REF 7 LAST 564	32,6633	0 3430 0	STEEROFF TC	FLAG1DWN	
0442		32,6634	00010 0	STEERMASK OCT	00010	
0443	REF 58 LAST 568	32,6635	0 2256 1	TC	TASKOVER	
0444	REF 1	32,6636	3 6463 0	TUMTEST2 CAF	ARRSTMSK	TEST IF BURN IS TUMBLE ARREST
0445	REF 8 LAST 568	32,6637	7 0647 0	MASK	FLAGWRD2	
0446	REF 450 LAST 569	32,6640	1 0000 0	CCS	A	
0447	REF 1	32,6641	0 6660 1	TC	STR4OUT	
0448	REF 1	32,6642	3 3546 0	CAF	TWENTY2	
0449	REF 22 LAST 569	32,6643	0 2312 0	TC	NEWPHASE	
0450		32,6644	00004 0	OCT	4	
0451	REF 14 LAST 563	32,6645	4 0646 1	ROLLTASK CS	FLAGWRD1	TEST IF STEER FLAG SET
0452	REF 1	32,6646	7 6634 1	MASK	STEERMASK	
0453	REF 451 LAST 569	32,6647	1 0000 0	CCS	A	
0454	REF 59 LAST 569	32,6650	0 2256 1	TC	TASKOVER	IT IS NOT. KILL ROLLTASK
0455	REF 1	32,6651	3 4502 1	CAF	PRI010	SUBMIT JOB TO DO ROLL STEERING
0456	REF 18 LAST 559	32,6652	0 2046 1	TC	FINDVAC	
0457	REF 1	32,6653	66322 1	CADR	ROLLJOB	
0458	REF 1	32,6654	3 6703 0	RED04.22 CAF	5SEC32	RECALL ROLLTASK IN 5 SECS
0459	REF 75 LAST 569	32,6655	0 2173 0	TC	WAITLIST	
0460	REF 4 LAST 568	32,6656	64645 1	CADR	ROLLTASK	
0461	REF 60 LAST 569	32,6657	0 2256 1	TC	TASKOVER	
0462	REF 8 LAST 569	32,6660	0 3430 0	STR4OUT TC	FLAG1DWN	
0463		32,6661	00010 0	OCT	00010	
0464	REF 1	32,6662	0 6556 1	TC	TASK4OUT	
0465	REF 3 LAST 567	32,6663	0 3405 0	PLUSXOFF TC	RELAYOFF	REMOVE SCS +X TRANS DISCRETE (C27)
0466		32,6664	40020 1	OCT	40020	
04662	REF 11 LAST 568	32,6665	0 3416 1	TC	FLAG1UP	SET INITFLAG TO ENABLE MANEUVER TO SPS1

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04664			32,6666	00400 0	OCT	00400	BURN ATTITUDE
04665	REF	1	32,6667	3 6706 0	CAF	89.5SEC	START ENGINE IN 90 SECS
04666	REF	76 LAST 569	32,6670	0 2173 0	TC	WAITLIST	
04667	REF	9 LAST 567	32,6671	64527 0	CADR	ATTCTNOFF	
04668	REF	4 LAST 367	32,6672	3 3535 1	CAF	THIRTEEN	
04669	REF	23 LAST 569	32,6673	0 2312 0	TC	NEWPHASE	
046695			32,6674	00004 0	OCT	00004	
0467	REF	61 LAST 569	32,6675	0 2256 1	TC	TASKOVER	
0468			32,6676	00031 0	0.25SEC	DEC	25
0469			32,6677	00144 0	1SEC32	DEC	100
0471			32,6700	00372 1	2.5SEC	DEC	250
0472			32,6701	00454 1	3SEC	DEC	300
0473			32,6702	00536 1	3.5SEC	DEC	350
0474			32,6703	00764 1	5SEC32	DEC	500
0475			32,6704	01130 1	6SEC	DEC	600
0476			32,6705	02734 0	15SEC	DEC	1500
04765			32,6706	21366 1	89.5SEC	DEC	8950
0477	REF	20 LAST 518		4503	SHTDNMSK	EQJALS	BIT12
0478			32,6707	00140 1	SPS34MSK	OCT	00140

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0479	REF	11	LAST	568	32,6710	4	4502	0	ENGINEOFF	CS	BIT13	SET ENGINE OFF
0480	REF	46	LAST	568	32,6711	7	0011	0		MASK	OUT1	
0481	REF	47	LAST	571	32,6712	5	0011	1		TS	OUT1	
0482	REF	11	LAST	568	32,6713	0	2677	0		TC	READTIME +1	SAVE TIME OF CUTOFF
0483	REF	34	LAST	568	32,6714	4	0572	0		CS	RUPTSTOR	
0484	REF	5	LAST	157	32,6715	5	1462	0		TS	TCUTOFF	
0485	REF	35	LAST	571	32,6716	4	0573	1		CS	RUPTSTOR +1	
0486	REF	6	LAST	571	32,6717	5	1463	1		TS	TCUTOFF +1	
0487	REF	9	LAST	569	32,6720	0	3430	0		TC	FLAG1DWN	DISABLE DV MONITOR
0488					32,6721		00020	0		OCT	00020	
04881	REF	14	LAST	541	32,6722	4	0044	0		CS	PIPAX	SAVE DELTAV AT ENGINE OFF TIME.
04882	REF	8	LAST	330	32,6723	5	1222	1		TS	VAVEGON	
04883	REF	11	LAST	456	32,6724	4	0045	1		CS	PIPAY	
04884	REF	9	LAST	571	32,6725	5	1223	0		TS	VAVEGON + 1	USE VAVEGON AREA FOR THIS.
04885	REF	7	LAST	456	32,6726	4	0046	1		CS	PIPAZ	
04886	REF	10	LAST	571	32,6727	5	1224	1		TS	VAVEGON + 2	
04887	REF	4	LAST	569	32,6730	0	3405	0		TC	RELAYOFF	2 REMOVE SC5 +X TRANS DISCRETE (C27)
04888					32,6731		40020	1		OCT	40020	
0489	REF	9	LAST	569	32,6732	4	0647	0		CS	FLAGWRD2	TEST IF THAT WAS A TUMBLE BURN
0490	REF	2	LAST	569	32,6733	7	6463	1		MASK	ARRSTMSK	
0491	REF	452	LAST	569	32,6734	1	0000	0		CCS	A	
0492	REF	2	LAST	131	32,6735	0	6774	0		TC	SPS1TEST	
0493	REF	198	LAST	568	32,6736	3	4516	1		CAF	ONE	
0494	REF	3	LAST	565	32,6737	5	1446	0		TS	VGCNTR	
0495	REF	12	LAST	569	32,6740	0	3416	1		TC	FLAG1UP	SET INTP, INIT FLAGS
0496					32,6741		01400	1		OCT	01400	
04961	REF	16	LAST	564	32,6742	3	4501	1		CAF	BIT14	TEST IF ABORT SIGNAL RECEIVED
04962	REF	29	LAST	564	32,6743	7	0645	1		MASK	STATE	
04963	REF	453	LAST	571	32,6744	1	0000	0		CCS	A	
04964	REF	1			32,6745	0	6764	1		TC	VRCAD	IT WAS, JUMP TO DO TUMBLE ABORT BURN
049643	REF	1			32,6746	3	6506	1		CAF	93.8SEC	START ENGINE IN 94.3 SECS
049644	REF	77	LAST	570	32,6747	0	2173	0		TC	WAITLIST	12
049645	REF	10	LAST	570	32,6750		64527	0		CADR	ATTNOFF	
049646	REF	2	LAST	564	32,6751	3	6426	1		CAF	SPS1LOC	SET LOCATION FOR NOMINAL SPS1 VR COMP
049647	REF	3	LAST	565	32,6752	5	1470	0		TS	VRCADR	
04965	REF	5	LAST	563	32,6753	3	2160	1		CAF	PRI025	ESTABLISH MORE PRE-SPS1 BURN LOGIC
04966	REF	22	LAST	568	32,6754	0	2052	1		TC	NOVAC	
04967	REF	2	LAST	130	32,6755		64423	0		CADR	REDO4.21	

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049672	REF	5	LAST	570	32,6756	3	3535	1	CAF	THIRTEEN	3	
049674	REF	24	LAST	570	32,6757	0	2312	0	TC	NEWPHASE		
049676					32,6760		00004	0	OCT	4		
049677	REF	4	LAST	565	32,6761	0	3504	0	RED04.13	TC	SETBRNSW	SET BURN TO SPS1
049678					32,6762		00010	0	OCT	00010		
04968	REF	2	LAST	560	32,6763	0	6331	0	TC	TASK3OUT		
0497	REF	2	LAST	565	32,6764	3	6461	1	VRCAD	CAF	ABORTLOC	SET LOCATION TO ABORT VR COMPUTATION
0498	REF	4	LAST	571	32,6765	5	1470	0	TS	VRCADR		
0502	REF	21	LAST	525	32,6766	3	4473	0	CAF	THREE		
0503	REF	25	LAST	572	32,6767	0	2312	0	TC	NEWPHASE		
0504					32,6770		00003	1	OCT	00003		
0505	REF	5	LAST	572	32,6771	0	3504	0	RED03.3	TC	SETBRNSW	SET BURN TO ABORT AFTER TUMBLE
0506					32,6772		00004	0	TABTMASK	OCT	00004	
0507	REF	62	LAST	570	32,6773	0	2256	1	TC	TASKOVER		
0508	REF	2	LAST	535	32,6774	3	3554	0	SPS1TEST	CAF	TWENTY8	
05081	REF	26	LAST	572	32,6775	0	2312	0	TC	NEWPHASE		
05082					32,6776		00004	0	OCT	4		
05083	REF	7	LAST	571	32,6777	4	1463	0	CS	TCUTOFF +1		
0509	REF	4	LAST	558	32,7000	5	0665	1	TS	TBASE3		
0510	REF	5	LAST	567	32,7001	5	0666	1	TS	TBASE4		
0511	REF	10	LAST	571	32,7002	4	0647	0	CS	FLAGWRD2	TEST IF THAT WAS A SPS1 BURN	
0512	REF	1			32,7003	7	6416	0	MASK	SPS1MASK		
0513	REF	454	LAST	571	32,7004	1	0000	0	CCS	A		
0514	REF	2	LAST	126	32,7005	0	7070	1	TC	SETMOD23		
0515	REF	1			32,7006	3	6507	0	CAF	10.5SEC	CALL COAST PHASE IN 10.5 SECS	
0516	REF	78	LAST	571	32,7007	0	2173	0	TC	WAITLIST		
0517	REF	2	LAST	128	32,7010		50114	0	CADR	COASTPHS		
0518	REF	1			32,7011	3	7150	1	CAF	7SEC	DUPLICATE GMPOFF SEQUENCE BEFORE SETTING	
0519	REF	79	LAST	572	32,7012	0	2173	0	TC	WAITLIST	BURN SWITCH. (FOR RESTART LOGIC.)	
0520	REF	2	LAST	126	32,7013		65110	1	CADR	GIMPOWOF		
0521	REF	14	LAST	525	32,7014	3	5502	0	CAF	FOUR	3.4 RESTART KEEPS POWER OFF SEQ. GOING.	
0522	REF	27	LAST	572	32,7015	0	2312	0	TC	NEWPHASE		
0523					32,7016		00003	1	OCT	3		
0524	REF	22	LAST	572	32,7017	3	4473	0	CAF	THREE		
0525	REF	28	LAST	572	32,7020	0	2312	0	TC	NEWPHASE		
0526					32,7021		00004	0	OCT	00004		

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0527	REF	6 LAST 572	32,7022	0 3504 0	REDO4.3	TC	SETBRNSW	SET BURN TO SPS2
0528			32,7023	00020 0	SPS2MASK	OCT	00020	
0529	REF	63 LAST 572	32,7024	0 2256 1		TC	TASKOVER	
0530	REF	11 LAST 572	32,7025	4 0647 0	SPS2TEST	CS	FLAGWRD2	TEST IF THAT WAS A SPS2 BURN
0531	REF	1	32,7026	7 7023 0		MASK	SPS2MASK	
0532	REF	455 LAST 572	32,7027	1 0000 0		CCS	A	
0533	REF	1	32,7030	0 7050 0		TC	SPS3TEST	
0534	REF	1	32,7031	3 7146 0		CAF	0.75SEC	
0535	REF	80 LAST 572	32,7032	0 2173 0		TC	WAITLIST	
0536	REF	2 LAST 126	32,7033	31550 0		CADR	CGTASK	
0537	REF	1	32,7034	3 6704 1		CAF	6SEC	CALL FOR GMP ON IN 6 SECS
0538	REF	81 LAST 573	32,7035	0 2173 0		TC	WAITLIST	
0539	REF	5 LAST 130	32,7036	64511 0		CADR	GIMPOWON	
0540	REF	13 LAST 530	32,7037	3 5362 0		CAF	SEVEN	
0541	REF	29 LAST 572	32,7040	0 2312 0		TC	NEWPHASE	
0542			32,7041	00003 1		OCT	00003	
0543	REF	9 LAST 488	32,7042	3 3232 1		CAF	TEN	
0544	REF	30 LAST 573	32,7043	0 2312 0		TC	NEWPHASE	
0545			32,7044	00004 0		OCT	00004	
0546	REF	7 LAST 573	32,7045	0 3504 0	REDO4.10	TC	SETBRNSW	SET BURN TO SPS3
0547			32,7046	00040 0	SPS3MASK	OCT	00040	
0548	REF	64 LAST 573	32,7047	0 2256 1		TC	TASKOVER	
0549	REF	12 LAST 573	32,7050	4 0647 0	SPS3TEST	CS	FLAGWRD2	TEST IF THAT WAS A SPS3 BURN
0550	REF	1	32,7051	7 7046 0		MASK	SPS3MASK	
0551	REF	456 LAST 573	32,7052	1 0000 0		CCS	A	
0552	REF	3 LAST 572	32,7053	0 7070 1		TC	SETMOD23	IT WAS NOT. (EITHER A, TABT, OR SPS4)
0556	REF	1	32,7054	3 3536 1		CAF	FOURTN	
0557	REF	31 LAST 573	32,7055	0 2312 0		TC	NEWPHASE	
0558			32,7056	00004 0		OCT	00004	
0559	REF	2 LAST 573	32,7057	3 6704 1	GMPON	CAF	6SEC	CALL FOR ENGINE ON IN 10 SECS
0560	REF	82 LAST 573	32,7060	0 2173 0		TC	WAITLIST	
0561	REF	6 LAST 573	32,7061	64511 0		CADR	GIMPOWON	
05612	REF	1	32,7062	3 2144 1	REDO4.14	CAF	PRI07	
05614	REF	23 LAST 571	32,7063	0 2052 1		TC	NOVAC	
05616	REF	1	32,7064	65143 1		CADR	MODE44	
0562	REF	8 LAST 573	32,7065	0 3504 0		TC	SETBRNSW	SET BURN TO SPS4
0563			32,7066	00100 0	SPS4MASK	OCT	00100	

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0564	REF	65 LAST 573	32,7067	0 2256 1		TC	TASKOVER	
0565	REF	2 LAST 573	32,7070	3 2144 1	SETMOD23	CAF	PRI07	MAKE JOB TO CHANGE MODE
0566	REF	24 LAST 573	32,7071	0 2052 1		TC	NOVAC	
0567	REF	1	32,7072	65140 1		CADR	MODE23	
0568	REF	3 LAST 341	32,7073	3 3532 0		CAF	NINE	
0569	REF	32 LAST 573	32,7074	0 2312 0		TC	NEWPHASE	
0570			32,7075	00003 1		OCT	00003	
0571	REF	199 LAST 571	32,7076	4 4516 0		CS	ONE	
0572	REF	33 LAST 574	32,7077	0 2312 0		TC	NEWPHASE	
0573			32,7100	00004 0		OCT	00004	
0576	REF	2 LAST 572	32,7101	3 7150 1	GMPOFF	CAF	7SEC	
0577	REF	83 LAST 573	32,7102	0 2173 0		TC	WAITLIST	
0578	REF	3 LAST 572	32,7103	65110 1		CADR	GIMPOWOF	
0579	REF	15 LAST 572	32,7104	3 5502 0		CAF	FOUR	
0580	REF	34 LAST 574	32,7105	0 2312 0		TC	NEWPHASE	
0581			32,7106	00003 1		OCT	00003	
0582	REF	66 LAST 574	32,7107	0 2256 1		TC	TASKOVER	
0583	REF	1	32,7110	3 6702 1	GIMPOWOF	CAF	3.5SEC	CALL FOR DV MODE OFF IN 3.5 SECS
0584	REF	84 LAST 574	32,7111	0 2173 0		TC	WAITLIST	
0585	REF	2 LAST 126	32,7112	65124 0		CADR	DVMODOFF	
0586	REF	5 LAST 571	32,7113	0 3405 0		TC	RELAYOFF	
0587			32,7114	40200 1		OCT	40200	
0588	REF	12 LAST 531	32,7115	3 4477 1		CAF	FIVE	
0589	REF	35 LAST 574	32,7116	0 2312 0		TC	NEWPHASE	
0590			32,7117	00003 1		OCT	00003	
0591	REF	67 LAST 574	32,7120	0 2256 1		TC	TASKOVER	
0592	REF	6 LAST 574	32,7121	0 3405 0	GMPOFF3	TC	RELAYOFF	REMOVE SCS GMP DISCRETE (C30)
0593			32,7122	40200 1		OCT	40200	
0594	REF	3 LAST 572	32,7123	0 6331 0		TC	TASK3OUT	
0595	REF	7 LAST 574	32,7124	0 3405 0	DVMODOFF	TC	RELAYOFF	REMOVE SCS DV MODE DISCRETE (C24)
0596			32,7125	40002 1		OCT	40002	
0597	REF	20 LAST 519	32,7126	3 4475 0		CAF	SIX	
0598	REF	36 LAST 574	32,7127	0 2312 0		TC	NEWPHASE	
0599			32,7130	00003 1		OCT	00003	
0600	REF	3 LAST 567	32,7131	3 6676 0		CAF	0.25SEC	

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0601	REF	85 LAST 574	32,7132	0 2173 0		TC	WAITLIST	
0602	REF	2 LAST 126	32,7133	65135 0		CADR	ATTCONON	
0603	REF	68 LAST 574	32,7134	0 2256 1		TC	TASKOVER	
0604	REF	7 LAST 567	32,7135	0 3373 0	ATTCONON	TC	RELAYON	SET SCS ATT. CONT. DISCRETE (C23)
0605			32,7136	40001 1		OCT	40001	
0606	REF	4 LAST 574	32,7137	0 6331 0		TC	TASK3OUT	
0607	REF	23 LAST 565	32,7140	0 2362 1	MODE23	TC	NEWMODE	SET MAJOR MODE TO ATTITUDE HOLD
0608			32,7141	00023 0		OCT	00023	
0609	REF	82 LAST 565	32,7142	0 2124 1		TC	ENDOFJOB	
0610	REF	24 LAST 575	32,7143	0 2362 1	MODE44	TC	NEWMODE	SET MAJOR MODE TO SPS4
0611			32,7144	00044 1		OCT	00044	
0612	REF	83 LAST 575	32,7145	0 2124 1		TC	ENDOFJOB	

061202			32,7146	00113 1	0.75SEC	DEC	75
061204			32,7147	00144 0	1SEC	DEC	100
061206			32,7150	01274 1	7SEC	DEC	700
061208			32,7151	02176 0	11.5SEC	DEC	1150

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06125		24,6114		BANK 24		
0613	REF 13 LAST 571	24,6114	0 3416 1	COASTPHS TC	FLAG1UP	GET SET TO START COAST PHASE ACTIVITY
0614		24,6115	40000 0	COASTMSK OCT	40000	SET COAST FLAG
0615	REF 1	24,6116	3 6142 0	CAF	289.5SEC +1	SET UP LONGCALL TO FDAONTSK IN 289.5 SEC
0616	REF 25 LAST 289	24,6117	5 1461 0	TS	LONGTIME +1	
0617	REF 2 LAST 576	24,6120	3 6141 0	CAF	289.5SEC	
0618	REF 26 LAST 576	24,6121	5 1460 1	TS	LONGTIME	
0619	REF 1	24,6122	3 6140 1	CAF	FDAILOC	
0620	REF 3 LAST 289	24,6123	5 1467 0	TS	CALLCADR	
0621	REF 4 LAST 289	24,6124	0 5742 0	TC	IBNKCALL	MAKE WAITLIST CALL MORE THAN 120 SECS
0622	REF 3 LAST 289	24,6125	10552 1	CADR	LONGCALL	
0623	REF 2 LAST 554	24,6126	3 2146 0	CAF	PRI012	ESTABLISH INITIAL VERTICAL JOB
0624	REF 19 LAST 569	24,6127	0 2046 1	TC	FINDVAC	
0625	REF 2 LAST 125	24,6130	66621 1	CADR	SOAKINIT -	
0626	REF 87 LAST 565	24,6131	3 5503 1	CAF	TWO	
0627	REF 37 LAST 574	24,6132	0 2312 0	TC	NEWPHASE	
0628		24,6133	00002 0	OCT	00002	
0629	REF 16 LAST 574	24,6134	3 5502 0	CAF	FOUR	
0630	REF 38 LAST 576	24,6135	0 2312 0	TC	NEWPHASE	
0631		24,6136	00004 0	OCT	00004	
0632	REF 69 LAST 575	24,6137	0 2256 1	TC	TASKOVER	
0633	REF 1	24,6140	50143 1	FDAILOC CADR	FDAONTSK	
0634		24,6141	00001 0	289.5SEC 2DEC	28950	
C0634		24,6142	30426 1			
0635	REF 8 LAST 575	24,6143	0 3373 0	FDAONTSK TC	RELAYON	SET SCS FDAI ALIGN DISCRETE (C31)
0636		24,6144	40400 1	OCT	40400	
0637	REF 1	24,6145	3 6175 1	CAF	10SEC	
0638	REF 86 LAST 575	24,6146	0 2173 0	TC	WAITLIST	
0639	REF 2 LAST 128	24,6147	50154 1	CADR	FDAOFTSK	CALL FDAI OFF IN 10 SECS
0640	REF 13 LAST 574	24,6150	3 4477 1	CAF	FIVE	
0641	REF 39 LAST 576	24,6151	0 2312 0	TC	NEWPHASE	
0642		24,6152	00004 0	OCT	00004	
0643	REF 70 LAST 576	24,6153	0 2256 1	TC	TASKOVER	
0644	REF 1	24,6154	3 6177 0	FDAOFTSK CAF	-310SEC +1	
0645	REF 2 LAST 128	24,6155	6 1557 1	AD	TCOAST +1	

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0646	REF	27 LAST 576	24,6156	5 1461 0		TS	LONGTIME +1	
0647	REF	210 LAST 554	24,6157	3 5501 0		CAF	ZERO	
0648	REF	2 LAST 576	24,6160	6 6176 1		AD	-310SEC	
0649	REF	3 LAST 576	24,6161	6 1556 0		AD	TCOAST	
0650	REF	28 LAST 577	24,6162	5 1460 1		TS	LONGTIME	
0651	REF	1	24,6163	3 6200 0		CAF	UPTSKLOC	
0652	REF	4 LAST 576	24,6164	5 1467 0		TS	CALLCADR	
0653	REF	5 LAST 576	24,6165	0 5742 0		TC	IBNKCALL	
0654	REF	4 LAST 576	24,6166	10552 1		CADR	LONGCALL	
06541	REF	21 LAST 574	24,6167	3 4475 0		CAF	SIX	
06542	REF	40 LAST 576	24,6170	0 2312 0		TC	NEWPHASE	
06543			24,6171	00004 0		OCT	4	
0655	REF	8 LAST 574	24,6172	0 3405 0	FDOFTSK1	TC	RELAYOFF	REMOVE SCS FDAI ALIGN DISCRETE (C31).
0656			24,6173	40400 1		OCT	40400	
0660	REF	71 LAST 576	24,6174	0 2256 1		TC	TASKOVER	
0661			24,6175	01750 1	10SEC	DEC	1000	
06615			24,6176	77776 1	-310SEC	2DEC	-31000	
C06615			24,6177	43347 0				
0662	REF	2 LAST 129	24,6200	50201 1	UPTSKLOC	CADR	UPTASK	
07055				14,7550		BANK	14	
0706	REF	1	14,7550	3 2154 0	CGTASK	CAF	PRIO21	ESTABLISH CGJOB TO REMOVE ANGULAR CG
0707	REF	20 LAST 576	14,7551	0 2046 1		TC	FINDVAC	MOTION DEVELOPED DURING SPS2 BURN
0708	REF	1	14,7552	31562 1		CADR	CGJOB	
0709	REF	1	14,7553	3 7572 0		CAF	1.25514	
0710	REF	87 LAST 576	14,7554	0 2173 0		TC	WAITLIST	
0711	REF	2 LAST 126	14,7555	65121 0		CADR	GMPOFF3	
0712	REF	4 LAST 349	14,7556	3 4513 1		CAF	EIGHT	
0713	REF	41 LAST 577	14,7557	0 2312 0		TC	NEWPHASE	
0714			14,7560	00003 1		OCT	3	
0715	REF	72 LAST 577	14,7561	0 2256 1		TC	TASKOVER	
0716	REF	25 LAST 575	14,7562	0 2362 1	CGJOB	TC	NEWMODE	SET MAJOR MODE TO SPS3 BURN
0717			14,7563	00043 0		OCT	00043	
0718	REF	56 LAST 561	14,7564	0 4000 0		TC	INTPRET	

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0719			14,7565	75175 0	VMOVE	1	GET NOMINAL SPS2 CG CHANGE ABOUT IMU
0720			14,7566	76575 1	RTB	EXIT	GIMBAL AXES INTO VAC, SCALED AT KE/2 REV
0721	REF	1	14,7567	13534 1		DELCDU	(KE =1.5), AND DECREMENT THETAD, +1, +2
0722	REF	1	14,7570	20416 0		INCRCDUS	
0723	REF	84 LAST 575	14,7571	0 2124 1	TC	ENDOFJOB	
07233			14,7572	00175 1 1.25514	DEC	125	
07235				32,7152	BANK	32	

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0724	REF	1		32,7152	3 7254 0	READACCS	CAF	PIPCADR	BRANCH TO PIPA READ ROUTINE
0725	REF	2 LAST 337		32,7153	0 5750 0		TC	ISWCALL	
0726	REF	88 LAST 576		32,7154	3 5503 1		CAF	TWO	
0727	REF	42 LAST 577		32,7155	0 2312 0		TC	NEWPHASE	
0728				32,7156	00005 1		OCT	00005	
0729	REF	5 LAST 344		32,7157	4 1465 0	RED05.2	CS	PIPTIME +1	
0730	REF	4 LAST 553		32,7160	5 0667 0		TS	TBASE5	
0731	REF	89 LAST 579		32,7161	3 5503 1		CAF	TWO	
0732	REF	2 LAST 337		32,7162	5 1035 0		TS	PIPAGE	
0733	REF	1		32,7163	3 4514 0		CAF	ENTRYMSK	TEST IF ENTRY FLAG SET
0734	REF	15 LAST 569		32,7164	7 0646 1		MASK	FLAGWRD1	
0735	REF	457 LAST 573		32,7165	1 0000 0		CCS	A	
0736	REF	1		32,7166	0 7212 1		TC	SETUPENT	
0737	REF	16 LAST 579		32,7167	4 0646 1		CS	FLAGWRD1	TEST IF COAST FLAG SET
0738	REF	1		32,7170	7 7256 0		MASK	CSTMASK	
0739	REF	458 LAST 579		32,7171	1 0000 0		CCS	A	
0740	REF	44 LAST 551		32,7172	0 3062 0		TC	CCSHOLE	
0741	REF	1		32,7173	0 7216 0		TC	SETUPSOK	IT IS. DO NOT RESET READACCS
0742	REF	1		32,7174	3 7257 0		CAF	ABORT32	TEST IF ABORT BURN IS SET. IF SO, NEED
0743	REF	13 LAST 573		32,7175	7 0647 0		MASK	FLAGWRD2	2.5SECS COMPUTING INTERVAL
0744	REF	459 LAST 579		32,7176	1 0000 0		CCS	A	
0745	REF	1		32,7177	0 7222 1		TC	CHANGEDT	IT IS
0746	REF	2 LAST 553		32,7200	3 7567 1		CAF	2SEC	IT IS NOT. CALL READACCS IN 2 SECS
0747	REF	88 LAST 577		32,7201	0 2173 0		TC	WAITLIST	
0748	REF	2 LAST 338		32,7202	65152 1		CADR	READACCS	
0749	REF	1		32,7203	3 2152 0	MAKESERV	CAF	PRID16	ESTABLISH SERVICER ROUTINE
0750	REF	21 LAST 577		32,7204	0 2046 1		TC	FINDVAC	
0751	REF	1		32,7205	65262 1		CADR	SERVICER	
07511	REF	23 LAST 572		32,7206	3 4473 0		CAF	THREE	
07512	REF	43 LAST 579		32,7207	0 2312 0		TC	NEWPHASE	
07513				32,7210	00005 1		OCT	5	
0752	REF	73 LAST 577		32,7211	0 2256 1		TC	TASKOVER	
0753	REF	3 LAST 579		32,7212	3 7567 1	SETUPENT	CAF	2SEC	CALL ENTRY ROUTINES IN 2 SECS
0754	REF	89 LAST 579		32,7213	0 2173 0		TC	WAITLIST	
0755	REF	1		32,7214	56004 0		CADR	PIPOP	
0756	REF	1		32,7215	0 7203 1		TC	MAKESERV	

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0757	REF	4	LAST	579	32,7216	3	7567	1	SETUPSOK	CAF	2SEC	CALL SOAKTASK IN 2 SECS	
0758	REF	90	LAST	579	32,7217	0	2173	0		TC	WAITLIST		
0759	REF	1			32,7220		66657	0		CADR	SOAKTASK		
0760	REF	2	LAST	579	32,7221	0	7203	1		TC	MAKESERV		
0761	REF	26	LAST	563	32,7222	3	4516	1	CHANGEDT	CAF	BIT1	FORCE SERVICER TO SET DELTAT TO 2.5 SECS	
0762	REF	1			32,7223	5	1030	0		TS	DELTAT +1		
0763	REF	1			32,7224	3	7260	1		CAF	2.5SEC32	CALL READACCS IN 2.5 SECS	
0764	REF	3	LAST	580	32,7225	0	7201	0		TC	MAKESERV -2		
0765	REF	2	LAST	579	32,7226	3	7257	0	REREADAC	CAF	ABORT32	READACCS RESTART LOCATION	
0766	REF	14	LAST	579	32,7227	7	0647	0		MASK	FLAGWRD2		
0767	REF	460	LAST	579	32,7230	1	0000	0		CCS	A		
0768	REF	1			32,7231	0	7234	0		TC	SET2.5S		
0769	REF	1			32,7232	3	7255	1	CAFREPIP	CAF	REPIPCAD		
0770	REF	3	LAST	579	32,7233	0	7153	1		TC	READACCS +1		
0771	REF	2	LAST	580	32,7234	4	7260	0	SET2.5S	CS	2.5SEC32		
0772	REF	5	LAST	579	32,7235	6	0667	0		AD	TBASE5		
0773	REF	22	LAST	567	32,7236	6	0036	1		AD	TIME1		
0774	REF	36	LAST	571	32,7237	3	0572	1		XCH	RUPTSTOR		
0775	REF	37	LAST	580	32,7240	1	0572	0		CCS	RUPTSTOR		
0776	REF	1			32,7241	0	7232	0		TC	CAFREPIP		
0777	REF	2	LAST	580	32,7242	0	7232	0		TC	CAFREPIP		
0778	REF	3	LAST	580	32,7243	3	7260	1		CAF	2.5SEC32		
0779	REF	38	LAST	580	32,7244	6	0572	1		AD	RUPTSTOR		
0780	REF	25	LAST	524	32,7245	6	4476	0		AD	POSMAX		
07801	REF	461	LAST	580	32,7246	5	0000	1		TS	A		
07802	REF	3	LAST	580	32,7247	0	7232	0		TC	CAFREPIP		
07803	REF	39	LAST	580	32,7250	4	0572	0		CS	RUPTSTOR		
0781	REF	91	LAST	580	32,7251	0	2173	0		TC	WAITLIST		
0782	REF	4	LAST	580	32,7252		65232	1		CADR	CAFREPIP		
0783	REF	74	LAST	579	32,7253	0	2256	1		TC	TASKOVER		
0784	REF	2	LAST	338	32,7254	61313	1		PIPCADR	CADR	PIPASR		
0785	REF	2	LAST	338	32,7255	61364	1		REPIPCAD	CADR	REPIPASR		
0786	REF	24	LAST	531		4504			CHDTMASK	EQUALS	BIT11		
0787	REF	15	LAST	551		4514			ENTRYMSK	EQUALS	BIT3		
0788	REF	25	LAST	580		4504			READMASK	EQUALS	BIT11		
07885					32,7256	40000	0		CSTMASK	OCT	40000		
0789					32,7257	00006	1		ABORT32	OCT	6		
0790					32,7260	00372	1		2.5SEC32	DEC	250		
0791					32,7261	00620	0		45EC	DEC	400		

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0794	REF	155	LAST	565	32,7262	0 5654 0	SERVICER	TC	BANKCALL	COMPENSATE THE PIPA DATA IN THE DELV
0795	REF	3	LAST	339	32,7263	31017 0		CADR	1/PIPA	REGISTERS.
079502	REF	30	LAST	571	32,7264	4 0645 1		CS	STATE	TEST IF PIPAS BIAS IS TO BE DISREGARDED
079504	REF	21	LAST	570	32,7265	7 4503 1		MASK	BIT12	
079506	REF	462	LAST	580	32,7266	1 0000 0		CCS	A	
079508	REF	2	LAST	131	32,7267	0 7276 0		TC	RED05.3	NO
07951	REF	4	LAST	22	32,7270	5 1001 1		TS	DELV	YES, CLEAR OUT DELV AS LONG AS BIAS FLAG
079512	REF	5	LAST	581	32,7271	5 1002 1		TS	DELV +1	IS SET.
079514	REF	6	LAST	581	32,7272	5 1003 0		TS	DELV +2	
079516	REF	7	LAST	581	32,7273	5 1004 1		TS	DELV +3	
079518	REF	8	LAST	581	32,7274	5 1005 0		TS	DELV +4	
07952	REF	9	LAST	581	32,7275	5 1006 0		TS	DELV +5	
0796	REF	57	LAST	577	32,7276	0 4000 0	RED05.3	TC	INTPRET	
07961					32,7277	76776 0		ITC	0	SEE IF TIME FOR STATE VECTOR UPDATE.
07962	REF	1			32,7300	15712 1			501UPCHK	(501 & 2 ONLY).
0797					32,7301	76776 0	REGSTEP	ITC	0	
0798	REF	1			32,7302	21551 0			CALCRVG	
07981	REF	5	LAST	553	32,7303	3 3533 1	AVGRET	CAF	ELEVEN	ROUTINE CYCLES 12 TIMES TO SAVE OLD VR,
07982	REF	460	LAST	534	32,7304	5 0115 1	AGAIN	TS	MPAC	VN FOR RESTARTS
07983	REF	461	LAST	581	32,7305	2 0115 0		INDEX	MPAC	
07984	REF	1			32,7306	4 1416 1		CS	VR	
07985	REF	462	LAST	581	32,7307	2 0115 0		INDEX	MPAC	
07986	REF	1			32,7310	5 1263 1		TS	VR1	(TEMPORARIES IN AMEMORY)
07987	REF	463	LAST	581	32,7311	1 0115 0		CCS	MPAC	
07988	REF	1			32,7312	0 7304 1		TC	AGAIN	
079881	REF	4	LAST	571	32,7313	4 1446 1		CS	VGCNTR	SAVE FOR RESTARTS
079882	REF	1			32,7314	5 1261 0		TS	VGCNT1	
079883	REF	2	LAST	568	32,7315	4 1447 0		CS	DVCNTR	
079884	REF	1			32,7316	5 1262 0		TS	DVCNT1	
07989	REF	9	LAST	564	32,7317	0 2276 0		TC	PHASCHNG	
079895					32,7320	02705 1		OCT	02705	
0799	REF	58	LAST	581	32,7321	0 4000 0	RE5.23	TC	INTPRET	
0800					32,7322	43576 1		TEST	0	TEST IF ENTRY FLAG SET
0801	REF	1			32,7323	00036 1			ENTRYFLG	
0802	REF	1			32,7324	25354 1			GETFF	IT IS NOT
0803					32,7325	45176 0		DMOVE	0	
08035	REF	1			32,7326	21144 0			LAD	
0804	REF	1			32,7327	33576 0		STORE	INITL/D	
08042					32,7330	75575 1		AXT,1	1	

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08045			32,7331	43565 0	TEST	AXT,1	
08055			32,7332	00001 0		0	
0806	REF	1	32,7333	00003 1		ABORTSIG	
08065	REF	1	32,7334	25337 1		PACIFIC	
0807			32,7335	00011 1		8D	
0811			32,7336	46176 0	PACIFIC	COMP*	0
0812	REF	2 LAST 554	32,7337	03275 1		TPACIFC,1	
0813	REF	3 LAST 554	32,7340	33145 1	STORE	DTEAROT	
0814			32,7341	74176 1	VMOVE*	0	
0815	REF	2 LAST 555	32,7342	03301 0		RTPACIFC,1	
0816	REF	3 LAST 555	32,7343	33115 1	STORE	RTINIT	
0817			32,7344	76776 0	ITC	0	
0818	REF	3 LAST 555	32,7345	13450 1		EARROT1	
0819			32,7346	77576 0	EXIT	0	
0820	REF	211 LAST 577	32,7347	3 5501 0	CAF	ZERO	RESET DELTAT +1 TO ZERO
0821	REF	2 LAST 580	32,7350	5 1030 0	TS	DELTAT +1	
0822	REF	26 LAST 560	32,7351	0 5720 1	TC	POSTJUMP	GO TO ENTRY INITIALIZATION ROUTINE.
0823	REF	1	32,7352	61430 1	CADR	STARTENT	
08231			32,7353	76776 0	GETFF	ITC	0
08232	REF	1	32,7354	22001 0		CALCTFF	2 COMPUTE TIME TO FREE-FALL TO RTERM
0824			32,7355	43575 1	COASTTEST	TEST	1
0825			32,7356	75026 1		VMOVE	VSRT
0826	REF	1	32,7357	00022 1		COASTFLG	3 TEST IF COAST FLAG SET
0827	REF	1	32,7360	25454 0		TFFTEST	
0828	REF	9 LAST 355	32,7361	00766 0		RN	IT IS. TRANSFER RN,VN TO ORBITAL
08281	REF	11 LAST 326	32,7362	00002 0		RSCALE -15D	
0829	REF	16 LAST 330	32,7363	33101 1	STORE	RRECT	INTEGRATION ROUTINE
0830			32,7364	75176 0	VMOVE	0	
0831	REF	8 LAST 355	32,7365	00774 0		VN	
0832	REF	13 LAST 330	32,7366	33107 1	STORE	VRECT	
083202			32,7367	77576 0	EXIT	0	
083204	REF	3 LAST 158	32,7370	4 1456 0	CS	TFF	
083206	REF	26 LAST 580	32,7371	6 4476 0	AD	POSMAX	SEE IF TFF IS POSMAX (I.E.- WILL NOT INTERSECT 400,000 FT)
083208	REF	463 LAST 581	32,7372	1 0000 0	CCS	A	
08321	REF	2 LAST 565	32,7373	0 3462 1	TC	STATEUP	ALL O.K., SO SET TFF2 FLAG TO ENABLE
083212			32,7374	10000 0	OCT	10000	(TFF - TFFMIN) CALCULATIONS FOR SPS2
083214	REF	1	32,7375	0 7406 1	TC	NOMCASE	IGNITION SEQUENCE
083216	REF	1	32,7376	4 1720 1	CS	TFFNOM	WILL NOT INTERSECT 400,000 FT, SO SET

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083217			32,7377	4 0000 0	COM		TFF TO NOMINAL VALUE TO COMPUTE
083218	REF	4 LAST 582	32,7400	5 1456 1	TS	TFF	TAVEGON AND TCOAST FOR A SPS2 BURN
08322	REF	2 LAST 582	32,7401	4 1721 0	CS	TFFNOM +1	
083221			32,7402	4 0000 0	COM		
083222	REF	5 LAST 583	32,7403	5 1457 0	TS	TFF +1	
083224	REF	1	32,7404	0 3474 0	TC	STATEDWN	RESET TFF2 FLAG SO THAT SPS2 IGNITION IS
083226			32,7405	10000 0	OCT	10000	SCHEDULED A FIXED TIME AFTER AVE G. ON
083228	REF	59 LAST 581	32,7406	0 4000 0	NOMCASE TC	INTPRET	
0833			32,7407	66776 1	DSJ	0	TIME TO TURN AVE G ON =TFF-23MIN.
0834	REF	6 LAST 583	32,7410	01457 0		TFF	
0835	REF	1	32,7411	25571 0		23MIN	
0836	REF	4 LAST 327	32,7412	33211 0	STORE	TAVEGON	
0837			32,7413	47574 1	NOLOD	2	TIME OF COAST = PIPTIME + (TFF-25MIN)
0838			32,7414	66756 0	DSJ	BMN	- TCUTOFF
0839			32,7415	66742 0	DSJ	DAD	
08391	REF	1	32,7416	25573 1		2MIN	
08392	REF	1	32,7417	25433 1		SPS2NOW	TAVEGON TOO SMALL-SCHEDULE SPS2 NOW
08393	REF	8 LAST 572	32,7420	01463 1		TCUTOFF	
08394	REF	6 LAST 579	32,7421	01465 1		PIPTIME	
08395	REF	4 LAST 577	32,7422	33557 0	STORE	TCOAST	
0840			32,7423	77576 0	EXIT	0	
0841	REF	7 LAST 583	32,7424	4 1465 0	CS	PIPTIME +1	START UP FREE-FALL GYRO DRIFT COMP.
0842			32,7425	4 0000 0	COM		
0843	REF	4 LAST 223	32,7426	5 0755 0	TS	OLDBT1	
0844	REF	1	32,7427	0 3440 1	TC	FLAG2UP	BEGINS WITH NEXT IDLETASK. SET DRIFTFLG
0845			32,7430	40000 0	OCT	40000	
0846	REF	85 LAST 578	32,7431	0 2124 1	TC	ENDOFJOB	SERVICER DIES HERE AT START OF COASTPHS.
084605			32,7432	77576 0	SPS2NOW EXIT	0	
08461	REF	14 LAST 576	32,7433	0 3416 1	TC	FLAG1UP	SET INIT FLAG TO ENABLE MANEUVER TO
084615			32,7434	00400 0	OCT	00400	SPS2 BURN ATTITUDE
08462	REF	200 LAST 574	32,7435	3 4516 1	CAF	ONE	
084625	REF	5 LAST 581	32,7436	5 1446 0	TS	VGCNTR	
08463	REF	10 LAST 571	32,7437	0 3430 0	TC	FLAG1DWN	REMOVE COAST FLAG TO CANCEL COLD SOAK
084635			32,7440	40000 0	OCT	40000	
08464	REF	201 LAST 583	32,7441	4 4516 0	CS	ONE	LET ENEMA KILL COLD SOAK MANUEVER
084645	REF	44 LAST 579	32,7442	0 2312 0	TC	NEWPHASE	

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08465			32,7443	00002 0		DCT	00002	
084655	REF	202 LAST 583	32,7444	4 4516 0		CS	ONE	LET ENEMA KILL CALL FOR FDAONTSK
08466	REF	45 LAST 583	32,7445	0 2312 0		TC	NEWPHASE	
084665			32,7446	00004 0		OCT	00004	
08467	REF	1	32,7447	3 2151 0		CAF	PRI015	DO AN ENEMA AFTER THIS JOB
084675	REF	25 LAST 574	32,7450	0 2052 1		TC	NOVAC	
08468	REF	4 LAST 568	32,7451	11147 0		CADR	ENEMA	RESTART READACCS AND WAIT FOR TFFMIN
084685	REF	60 LAST 583	32,7452	0 4000 0		TC	INTPRET	
0847			32,7453	43575 1	TFFTEST	TEST	1	TEST IF TFFMIN SHOULD BE CHECKED.
084702			32,7454	66616 0		DSJ	BPL	TFF2 FLAG SET AT SPS1 CUTOFF
084704	REF	1	32,7455	00004 0			TFF2FLAG	
084706	REF	1	32,7456	25514 0			TFFTEST1	
084708	REF	7 LAST 583	32,7457	01457 0			TFF	
08471	REF	3 LAST 263	32,7460	01677 0			TFFMIN	
084712	REF	2 LAST 584	32,7461	25514 0			TFFTEST1	
084714			32,7462	77576 0		EXIT	0	
084716			32,7463	2 0017 0	TESTTFF	INHINT		
084718	REF	1	32,7464	3 7575 1		CAF	90SEC32	
08472	REF	92 LAST 580	32,7465	0 2173 0		TC	WAITLIST	
084722	REF	2 LAST 131	32,7466	50463 0		CADR	PLUSX2	
084724	REF	1	32,7467	1 1722 0		CCS	S2SWITCH	SEE IF 2ND BURN ATTITUDE TO BE COMPUTED
084726	REF	1	32,7470	0 7477 1		TC	SET32	NO
084728	REF	2 LAST 584	32,7471	0 7477 1		TC	SET32	
08473			32,7472	0 7473 0		TC	+1	
084812	REF	15 LAST 583	32,7473	0 3416 1		TC	FLAG1UP	SET INIT FLAG TO RE:MANEUVER TO SPS2
084813			32,7474	00400 0		OCT	00400	BURN ATTITUDE
084814	REF	203 LAST 584	32,7475	3 4516 1		CAF	ONE	
084815	REF	6 LAST 583	32,7476	5 1446 0		TS	VGCNTR	
084816	REF	26 LAST 577	32,7477	0 2362 1	SET32	TC	NEWMODE	SET MAJOR MODE TO PRE-SPS2
084817			32,7500	00032 0		OCT	00032	
084818	REF	9 LAST 573	32,7501	0 3504 0		TC	SETBRNSW	SET BURN TO SPS2 BACK UP SETTING
084819			32,7502	00020 0		OCT	00020	
08482	REF	23 LAST 580	32,7503	4 0036 0		CS	TIME1	
084822	REF	6 LAST 572	32,7504	5 0666 1		TS	TBASE4	
084825	REF	1	32,7505	3 3556 1		CAF	THIRTY	
084826	REF	46 LAST 584	32,7506	0 2312 0		TC	NEWPHASE	
08483			32,7507	00004 0		OCT	00004	
084835	REF	2 LAST 583	32,7510	0 3474 0		TC	STATEDWN	REMOVE TFF2FLAG

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08484			32,7511	10000 0	OCT	10000	
084845	REF	61 LAST 584	32,7512	0 4000 0	TC	INTPRET	
0849			32,7513	43574 0	TFFTEST1 TEST	2	TEST IF INTP FLAG SET
0850			32,7514	65132 1	ABS	DSU	
0851			32,7515	73615 1	BMN	TEST	
0852	REF	1	32,7516	00027 1		INTPFLAG	
0853	REF	1	32,7517	25603 0		INITEST	IT IS NOT. CONTINUE AT INITEST
0854	REF	8 LAST 584	32,7520	01457 0		TFF	TEST IF TFF LESS THAN 95 SECS
0855	REF	1	32,7521	25601 1		DP95SEC	
0856	REF	1	32,7522	25542 0		SHUTDOWN1	IT IS. PREPARE TO FREE-FALL RE-ENTER
0857	REF	1	32,7523	00032 0		INT1FLAG	TEST IF FIRST INTERRUPT FLAG SET
0858			32,7524	25530 0		+3	IT IS NOT
0859			32,7525	77576 0	EXIT	0	IT IS. WAIT FOR 95 SEC INTERRUPT
0860	REF	1	32,7526	0 7741 1	TC	ENDSER32	
0861			32,7527	47575 0	NOLOD	1	TEST IF TFF LESS THAN 200 SECS
0862			32,7530	66616 0	DSJ	BPL	
0863	REF	1	32,7531	25577 0		DP105SEC	
0864	REF	2 LAST 585	32,7532	25603 0		INITEST	IT IS NOT. CONTINUE
0865			32,7533	77576 0	EXIT	0	
0866	REF	156 LAST 581	32,7534	0 5654 0	TC	BANKCALL	IT IS. BRANCH TO SHUTDOWN ROUTINES
0867	REF	1	32,7535	67037 1	CADR	SHUTDOWN	
0868	REF	16 LAST 584	32,7536	0 3416 1	TC	FLAG1UP	
0869			32,7537	00100 0	OCT	00100	
0870	REF	1	32,7540	0 7546 1	TC	SHTFLGUP	
0871			32,7541	77576 0	SHUTDOWN1 EXIT	0	
0872	REF	157 LAST 585	32,7542	0 5654 0	TC	BANKCALL	
0873	REF	2 LAST 585	32,7543	67037 1	CADR	SHUTDOWN	
0874	REF	11 LAST 583	32,7544	0 3430 0	TC	FLAG1DWN	REMOVE INTP FLAG (DISABLE TFF DECISIONS)
0875			32,7545	01000 0	OCT	01000	
0876	REF	17 LAST 585	32,7546	0 3416 1	SHTFLGUP TC	FLAG1UP	SET SHTDN FLAG
0877			32,7547	04000 0	OCT	04000	
0878	REF	2 LAST 585	32,7550	0 7741 1	TC	ENDSER32	
08781	REF	6 LAST 581	32,7551	3 3533 1	REDO5.23 CAF	ELEVEN	RE-ESTABLISH VR, DIFFVECT IN CASE OF
08782	REF	464 LAST 581	32,7552	5 0115 1	TS	MPAC	5.23 RESTART
08783	REF	465 LAST 585	32,7553	2 0115 0	INDEX	MPAC	
08784	REF	2 LAST 581	32,7554	4 1263 0	CS	VR1	

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08785	REF	466	LAST	585	32,7555	2	0115	0	INDEX	MPAC
08786	REF	2	LAST	581	32,7556	5	1416	0	TS	VR
08787	REF	467	LAST	586	32,7557	1	0115	0	CCS	MPAC
08788	REF	2	LAST	133	32,7560	0	7552	1	TC	RED05.23 +1

087881	REF	2	LAST	581	32,7561	4	1261	1	CS	VGCNT1
087882	REF	7	LAST	584	32,7562	5	1446	0	TS	VGCNTR
087883	REF	2	LAST	581	32,7563	4	1262	1	CS	DVCNT1
087884	REF	3	LAST	581	32,7564	5	1447	1	TS	DVCNTR

08789	REF	1			32,7565	0	7321	0	TC	RE5.23
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0879		32,7566	00000	1	DP2SEC	DEC	0.0
0880		32,7567	00310	0	2SEC	DEC	200
088001		32,7570	00010	0	23MIN	2DEC	138000 B-28
C088001		32,7571	15420	0			
088002		32,7572	00000	1	2MIN	2DEC	12000 B-28
C088002		32,7573	27340	0			
088003		32,7574	00077	1	OCT77	OCT	00077
088004		32,7575	21450	0	90SEC32	DEC	9000
0881		32,7576	00000	1	DP105SEC	2DEC	10500
C0881		32,7577	24404	1			
0882		32,7600	00000	1	DP95SEC	2DEC	9500
C0882		32,7601	22434	1			



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0884			32,7602	77576 0	INITEST	EXIT	0	
0885	REF 17	LAST 579	32,7603	4 0646 1		CS	FLAGWRD1	TEST IF THIS IS AN INITIAL PASS
0886	REF 1		32,7604	7 4506 1		MASK	INITMASK	
0887	REF 464	LAST 582	32,7605	1 0000 0		CCS	A	
0888	REF 1		32,7606	0 7664 1		TC	DVMNTEST	IT IS NOT
0889	REF 15	LAST 580	32,7607	4 0647 0		CS	FLAGWRD2	TEST IF BURN IS ABORT AFTER TUMBLE ARRET
0890	REF 1		32,7610	7 6772 1		MASK	TABTMASK	
0891	REF 465	LAST 587	32,7611	1 0000 0		CCS	A	
0892	REF 1		32,7612	0 7617 0		TC	INITISE	IT IS NOT
0893	REF 27	LAST 584	32,7613	0 2362 1		TC	NEWMODE	SET MAJOR MODE TO POST TUMBLE RECOVERY
0894			32,7614	00071 1		OCT	00071	
0895	REF 1		32,7615	3 7654 1		CAF	31.8DEG	TO REGAIN ATTITUDE AFTER TUMBLE SET AN
0896	REF 2	LAST 565	32,7616	5 1442 1		TS	LOOKANG	AVERAGE ANGLE TO HORIZON OF 31.8 DEGS.
0897	REF 62	LAST 585	32,7617	0 4000 0	INITISE	TC	INTPRET	
08972			32,7620	75176 0		VMOVE	0	DEFINES TRAJECTORY PLANE FOR YAW
08974	REF 9	LAST 582	32,7621	00774 0		VN		STEERING. USED IN CALCVGB
08976	REF 1		32,7622	33107 1		STORE	VIGNTION	
0898			32,7623	76776 0		ITC	0	BRANCH TO VG, B VECTOR COMPUTATIONS
0899	REF 1		32,7624	12421 0			CALCVGB	
0900			32,7625	77576 0		EXIT	0	
0901	REF 8	LAST 586	32,7626	1 1446 1		CCS	VGCNTR	WAIT FOR SECOND PASS THRU CALCVGB BEFORE
0902			32,7627	0 7631 1		TC	+2	COMPUTING THRUST ATTITUDE
0903			32,7630	0 7633 0		TC	+3	
0904	REF 9	LAST 587	32,7631	5 1446 0		TS	VGCNTR	
0905	REF 3	LAST 585	32,7632	0 7741 1		TC	ENDSER32	
0906	REF 63	LAST 587	32,7633	0 4000 0		TC	INTPRET	
0907			32,7634	76776 0		ITC	0	
0908	REF 1		32,7635	26256 1			BURNINIT	
0909			32,7636	77576 0		EXIT	0	
0910			32,7637	2 0017 0		INHINT		
0911	REF 3	LAST 576	32,7640	3 2146 0		CAF	PRI012	ESTABLISH JOB TO COMPUTE MANEUVER TO
0912	REF 22	LAST 579	32,7641	0 2046 1		TC	FINDVAC	BURN INITIAL ATTITUDE
0913	REF 2	LAST 125	32,7642	66404 1		CADR	ATTIJOB	
0914	REF 204	LAST 584	32,7643	3 4516 1		CAF	ONE	SET VGCNTR FOR TWO PASSES THROUGH
0915	REF 10	LAST 587	32,7644	5 1446 0		TS	VGCNTR	CALCVGB BEFORE ISSUINS STEER COMMANDS

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0916	REF	2	LAST	565	32,7645	3	7655	0	CAF	35DEG	RESTORE ANGLE TO HORIZON TO 35 DEGS		
0917	REF	3	LAST	587	32,7646	5	1442	1	TS	LOOKANG			
0918	REF	10	LAST	581	32,7647	0	2276	0	TC	PHASCHNG			
0919					32,7650		00402	1	OCT	00402			
0920	REF	12	LAST	585	32,7651	0	3430	0	TC	FLAG1DWN	REMOVE INIT FLAG		
0921					32,7652		00400	0	OCT	00400			
0922	REF	4	LAST	587	32,7653	0	7741	1	TC	ENDSER32			
0923					32,7654	02647	0	31.8DEG	DEC	0.088333	SCALED AT 1 REV		
0924					32,7655	03071	1	35DEG	DEC	0.097222			
0925	REF	7	LAST	288		4506		INITMASK	EQUALS	BIT9			
0926					32,7656	77576	0	VRFAIL	EXIT	0	EXIT HERE IF FAILURE TO COMPUTE ABORT VR		
0927	REF	11	LAST	587	32,7657	1	1446	1	CCS	VGCNTR	TEST IF THIS IS LAST PASS		
0928					32,7660	0	7662	1	TC	+2			
0929	REF	1			32,7661	0	7737	0	TC	ENDSHUT	IT IS. DO SHUTDOWN		
0930	REF	12	LAST	588	32,7662	5	1446	0	TS	VGCNTR	WAIT FOR MORE		
0931	REF	5	LAST	588	32,7663	0	7741	1	TC	ENDSER32			
0932	REF	18	LAST	587	32,7664	4	0646	1	DVMNTEST	CS	FLAGWRD1	TEST IF DV MONITOR IS ENABLED	
0933	REF	2	LAST	142	32,7665	7	4512	1	MASK	DVMONMSK			
0934	REF	466	LAST	587	32,7666	1	0000	0	CCS	A			
0935	REF	6	LAST	588	32,7667	0	7741	1	TC	ENDSER32	IT IS NOT		
0936	REF	64	LAST	587	32,7670	0	4000	0	TC	INTPRET			
0937					32,7671	71174	0	ABVAL	2		TEST IF DELV MAG. EXCEEDS DVMIN		
0938					32,7672	66756	0	DSJ	BMN				
0939					32,7673	77576	0	EXIT					
0940	REF	10	LAST	581	32,7674	01002	1			DELV			
0941	REF	1			32,7675	26001	1			DVMIN			
0942	REF	1			32,7676	25704	0			NODELTAV	IT DOES NOT. START DV MONITOR		
0943	REF	205	LAST	587	32,7677	4	4516	0	CS	ONE	IT DOES. (DVCNTR NORMALLY NEGATIVE)		
0944	REF	4	LAST	586	32,7700	5	1447	1	TS	DVCNTR			
0945	REF	158	LAST	585	32,7701	0	5654	0	TC	BANKCALL			
0946	REF	1			32,7702	66002	0	CADR	STRTEST				
0947					32,7703	77576	0	NODELTAV	EXIT	0			
0948	REF	5	LAST	588	32,7704	1	1447	0	CCS	DVCNTR			
0949	REF	1			32,7705	0	7712	1	TC	DVALARM	AFTER FIRST TIME SET ALARM		
0950	REF	1			32,7706	0	7717	1	TC	SHUTDWN3	5 PASSES UP. PREPARE FOR RE-ENTRY		

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0951	REF	4 LAST 574	32,7707	3 3532 0	CAF	NINE	FIRST TIME SET DVCNTR FOR 10 PASSES
0952	REF	6 LAST 588	32,7710	5 1447 1	TS	DVCNTR	
0953	REF	7 LAST 588	32,7711	0 7741 1	TC	ENDSER32	
0954	REF	19 LAST 475	32,7712	0 3007 0	DVALARM TC	ALARM	
0955			32,7713	01402 0	OCT	01402	
0958	REF	7 LAST 589	32,7714	1 1447 0	CCS	DVCNTR	
0959	REF	8 LAST 589	32,7715	5 1447 1	TS	DVCNTR	
0961	REF	8 LAST 589	32,7716	0 7741 1	TC	ENDSER32	
0962	REF	16 LAST 587	32,7717	4 0647 0	SHUTDWN3 CS	FLAGWRD2	
096205	REF	2 LAST 572	32,7720	7 6416 0	MASK	SPS1MASK	
09621	REF	467 LAST 588	32,7721	1 0000 0	CCS	A	
096215	REF	1	32,7722	0 7735 1	TC	SHUTDWN4	SHUT DOWN IF NOT DOING SPS1 BURN
09622			32,7723	2 0017 0	INHINT		CALL ON ENGINE-OFF IMMEDIATELY IF SPS1
096225	REF	206 LAST 588	32,7724	3 4516 1	CAF	ONE	
09623	REF	93 LAST 584	32,7725	0 2173 0	TC	WAITLIST	
096235	REF	6 LAST 569	32,7726	64710 0	CADR	ENGINEOFF	
09624			32,7727	2 0016 1	RELINT		
096245	REF	13 LAST 588	32,7730	0 3430 0	TC	FLAG1DWN	14 REMOVE STEER FLAG
09625			32,7731	00010 0	OCT	00010	
096255	REF	11 LAST 588	32,7732	0 2276 0	TC	PHASCHNG	
09626			32,7733	04104 0	OCT	04104	
096265	REF	9 LAST 589	32,7734	0 7741 1	TC	ENDSER32	
09627	REF	18 LAST 585	32,7735	0 3416 1	SHUTDWN4 TC	FLAG1UP	ENABLE FREE-FALL INTERRUPT
0963			32,7736	01000 0	OCT	01000	
0964	REF	159 LAST 588	32,7737	0 5654 0	ENDSHUT TC	BANKCALL	
0965	REF	3 LAST 585	32,7740	67037 1	CADR	SHUTDOWN	
0966	REF	160 LAST 589	32,7741	0 5654 0	ENDSER32 TC	BANKCALL	EXIT FROM SERVICER FROM BANK 32
0967	REF	1	32,7742	66241 0	CADR	ENDSERV	
0969				33,6000	SETLOC	66000	
0970	REF	13 LAST 548		4512	DVMONMSK	EQUALS	
0971			33,6000	00005 1	DVMIN	ZDEC	0.000318008
0971			33,6001	06565 1			
0972	REF	19 LAST 588	33,6002	4 0646 1	STRTEST CS	FLAGWRD1	TEST IF STEER FLAG SET
0973	REF	28 LAST 548	33,6003	7 4513 0	MASK	BIT4	
0974	REF	468 LAST 589	33,6004	1 0000 0	CCS	A	
0975	REF	2 LAST 589	33,6005	0 6241 0	TC	ENDSERV	IT IS NOT

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0976	REF	65 LAST 588	33,6006	0 4000 0		TC	INTPRET	
0977			33,6007	76776 0		ITC	0	
0978	REF	2 LAST 587	33,6010	12421 0			CALCVGB	
0979			33,6011	77576 0		EXIT	0	
0980	REF	12 LAST 589	33,6012	0 2276 0		TC	PHASCHNG	
0981			33,6013	00505 1		OCT	00505	
0982	REF	13 LAST 588	33,6014	1 1446 1	REDO5.5	CCS	VGCNTR	
0983			33,6015	0 6017 1		TC	+2	BEFORE TESTING VG AND GENERATING STEERIN
0984	REF	1	33,6016	0 6034 0		TC	JUMP10	COMMANDS
0985	REF	1	33,6017	5 1360 0		TS	ERRORSUM	ZERO STEER ERROR SUM
0986	REF	2 LAST 590	33,6020	5 1361 1		TS	ERRORSUM +1	
0987	REF	3 LAST 590	33,6021	5 1362 1		TS	ERRORSUM +2	
0988	REF	4 LAST 590	33,6022	5 1363 0		TS	ERRORSUM +3	
0989	REF	5 LAST 590	33,6023	5 1364 1		TS	ERRORSUM +4	
0990	REF	6 LAST 590	33,6024	5 1365 0		TS	ERRORSUM +5	
0991	REF	1	33,6025	3 6033 1		CAF	MDTINIT	
0992	REF	1	33,6026	5 1444 1		TS	MDT	
0993	REF	2 LAST 590	33,6027	5 1445 0		TS	MDT +1	
0996	REF	14 LAST 590	33,6030	1 1446 1		CCS	VGCNTR	
0997	REF	15 LAST 590	33,6031	5 1446 0		TS	VGCNTR	
0998	REF	3 LAST 589	33,6032	0 6241 0		TC	ENDSERV	
0999			33,6033	00076 0	MDTINIT	DEC	0.00381	16FT/S/S FOR 2.5 SECS AT 2(+5)M/CS
1000	REF	1	33,6034	0 3452 1	JUMP10	TC	FLAG2DWN	REMOVE CALC FLAG (KILLS ATTITUDE MAN-
1001			33,6035	02000 0		OCT	02000	EUVER IF STILL ACTIVE)
1002	REF	66 LAST 590	33,6036	0 4000 0		TC	INTPRET	
1003			33,6037	75775 0		VXSC	1	
1004			33,6040	46753 1		BVSU	UNIT	
1005	REF	11 LAST 588	33,6041	01002 1			DELV	
1006	REF	1	33,6042	21742 0			KPIP	
1007	REF	1	33,6043	01411 1			CBDT	
1008	REF	1	33,6044	33403 0		STORE	UNITMDT	
1009			33,6045	47575 0		NOLDD	1	TEST IF VG INCREASING WITH THRUST
1010			33,6046	42616 0		DOT	BPL	
1011	REF	1	33,6047	01353 0			VG	
1012	REF	1	33,6050	26235 1			VGALARM	IT IS. BRANCH TO CUT ENGINE AND WAIT
1013			33,6051	32033 0		STORE	26D	VG ACTUAL

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1014			33,6052	70776 0	DAD	0	SUM TWO INTERVALS OF MDT
1015			33,6053	00037 0		30D	
1016	REF	3 LAST 590	33,6054	01445 0		MDT	
1025			33,6055	64773 0	JUMP9	DMP 3	RESCALE VG ACTUAL TO 2(+5)M/CS
1026			33,6056	63746 1		TSLT BOV	
1027			33,6057	62746 0		DDV BOV	IF NO OVER FLOW ON DIVISION, LESS THAN
1028			33,6060	64772 1		DMP ITC	2 INTERVALS OF VG LEFT
1029			33,6061	00033 1		26D	
1030	REF	1	33,6062	26163 1		0.995	
1031			33,6063	00004 0		3	
1032	REF	1	33,6064	26072 0		STEERLAW	
1033			33,6065	77777 0		-	
1034	REF	2 LAST 591	33,6066	26072 0		STEERLAW	
1035	REF	3 LAST 582	33,6067	01030 0		DELTAT	
1036	REF	1	33,6070	26173 0		SETTGO	BRANCH TO SET TIME-TO-GO TO CUT-OFF
1037			33,6071	45176 0	STEERLAW DMOVE	0	SAVE NEW VALUE OF MDT
1038			33,6072	00037 0		30D	
1039	REF	4 LAST 591	33,6073	33445 1		STORE MDT	
1040			33,6074	64776 0		DMP 0	
1041	REF	1	33,6075	26165 1		K1STEER	= (0.815...) (STEER GAIN)
1042	REF	4 LAST 591	33,6076	01030 0		DELTAT	
1043			33,6077	71173 1	ABVAL	3	STEERING CROSS PRODUCT COMPUTED HERE
1044			33,6100	57706 1	TSLC	BDDV	
1045			33,6101	75606 0	VXSC	VXV	
1046			33,6102	44376 0	VSLT*		
1047	REF	2 LAST 590	33,6103	01353 0		VG	
1048	REF	4 LAST 311	33,6104	00050 1		X2	
1049			33,6105	77777 0		-	
1050	REF	3 LAST 591	33,6106	01353 0		VG	
1051	REF	2 LAST 590	33,6107	01403 1		UNITMDT	
1052			33,6110	00002 0		0,2	
1053	REF	1	33,6111	33345 0	STORE	STEERROR	FIRST TERM IN STEERLAW OUTPUT, SCALED
A1054							AT ONE REVOLUTION
1055			33,6112	47575 0	NOLOD	1	INCREMENT SUM OF STEER ERRORS
1056			33,6113	75642 0	VXSC	VAD	
1057	REF	1	33,6114	26167 0		K2STEER	= (INTEGRATOR GAIN) / (STEER GAIN)
1058	REF	7 LAST 590	33,6115	01361 1		ERRORSUM	
1059			33,6116	47574 1	NOLOD	2	TEST IF MAGNITUDE OF INTEGRATED STEER
1060			33,6117	71132 1	ABVAL	DSU	ERROR EXCEEDS MAX ALLOWABLE
1061			33,6120	43776 0	BPL		
1062	REF	1	33,6121	26171 1		ERRORMAX	
1063	REF	1	33,6122	26126 0		SUMPOINT	
1064			33,6123	75176 0	VMOVE	0	
1065	REF	8 LAST 591	33,6124	33361 0	STORE	ERRORSUM	STORE NEW STEER ERROR SUM

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1066			33,6125	50775	1	SUMPOINT	VAD	1	SUM ERROR AND INTEGRATED ERROR TERMS
1067			33,6126	76572	0		RTB	ITC	
1068	REF	2 LAST 591	33,6127	01345	1			STEERROR	
1069	REF	9 LAST 591	33,6130	01361	1			ERRORSUM	
1070	REF	4 LAST 557	33,6131	20265	1			FRESHPD	
1071	REF	1	33,6132	12375	0			CDUDRIVE	BRANCH WITH TOTAL STEERLAW OUTPUT IN VAC SCALED AT ONE REVOLUTION
A1072									
10721			33,6133	44775	1	STREXIT	VSLT	1	
10722			33,6134	47175	1		COMP	EXIT	RESCALE VG TO 2(+5)M/CS FOR DISPLAY
10723	REF	4 LAST 591	33,6135	01353	0			VG	
10724			33,6136	00003	1			2	
107241	REF	23 LAST 563	33,6137	0 3302	0		TC	GRABDSP	TRY TO GRAB DISPLAY
107242	REF	1	33,6140	0 6156	0		TC	NODISP	ALREADY GRABBED. SKIP VG DISPLAY
10725	REF	32 LAST 442	33,6141	2 0067	1		INDEX	FIXLOC	LOAD UPPER REGISTERS OF VG INTO DSPTM1
10726	REF	28 LAST 476	33,6142	4 0040	1		CS	VAC	
10727	REF	64 LAST 546	33,6143	5 0616	0		TS	DSPTM1	
10728	REF	33 LAST 592	33,6144	2 0067	1		INDEX	FIXLOC	
10729	REF	29 LAST 592	33,6145	4 0042	0		CS	VAC +2	
1073	REF	65 LAST 592	33,6146	5 0617	1		TS	DSPTM1 +1	
10731	REF	34 LAST 592	33,6147	2 0067	1		INDEX	FIXLOC	
10732	REF	30 LAST 592	33,6150	4 0044	0		CS	VAC +4	
10733	REF	66 LAST 592	33,6151	5 0620	0		TS	DSPTM1 +2	
10734	REF	1	33,6152	3 6157	1		CAF	V06N40	
10735	REF	41 LAST 430	33,6153	0 3100	0		TC	NVSUB	
10736	REF	3 LAST 551	33,6154	0 3250	0		TC	RELDSPON	
10737	REF	27 LAST 563	33,6155	0 3362	0		TC	FREEDSP	
10738	REF	4 LAST 590	33,6156	0 6241	0	NODISP	TC	ENDSERV	
1074			33,6157	00640	0	V06N40	OCT	00640	VERB 06 NOUN 40
1075			33,6160	06057	0	1.523	2DEC	1.523 B-3	
C1075			33,6161	03250	0				
1076			33,6162	37656	0	0.995	2DEC	0.995	
C1076			33,6163	02437	0				
1077			33,6164	03204	1	K1STEER	2DEC	0.101859164	(STEER GAIN =1/8)
C1077			33,6165	33423	1				
1078			33,6166	02436	1	K2STEER	2DEC	0.08	(INTEGRATOR GAIN =0.01)
C1078			33,6167	27024	1				
1079			33,6170	00026	0	ERRORMAX	2DEC	0.001388888	1 DEGREE SCALED AT 2 REVS
C1079			33,6171	30133	0				
1080			33,6172	47574	1	SETTGO	NOLOD	2	COME HERE TO SET ENGINE-OFF CALL
1081			33,6173	56633	1		TSRT	COMP	
1082			33,6174	43575	1		TEST	EXIT	
1083			33,6175	00005	1			4	C(MPAC) = TIME-TO-CUTOFF SINCE PIPTIME

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1084	REF	1		33,6176	00035	1		STEERFLG		SCALED AT 2(+14) CS	
1085	REF	1		33,6177	26134	0		STREXIT			
10852	REF	468	LAST 586	33,6200	3	0115	1	XCH	MPAC		
10854	REF	29	LAST 577	33,6201	5	1460	1	TS	LONGTIME	SAVE MPAC (USED IN RESTARTS)	
1086				33,6202	2	0017	0	REDO4.1	INHINT		
1087	REF	24	LAST 584	33,6203	4	0036	0	CS	TIME1		
1088	REF	7	LAST 584	33,6204	5	0666	1	TS	TBASE4		
1089	REF	8	LAST 583	33,6205	6	1465	1	AD	PIPTIME +1		
1090	REF	469	LAST 589	33,6206	1	0000	0	CCS	A		
1091	REF	27	LAST 534	33,6207	6	4500	0	AD	BIT15		
1092				33,6210	0	6213	1	TC	+3		
1093	REF	207	LAST 589	33,6211	6	4516	1	AD	ONE		
1094				33,6212	4	0000	0	COM			
1095	REF	30	LAST 593	33,6213	6	1460	1	AD	LONGTIME	(TEMP FOR MPAC)	
1096	REF	1		33,6214	6	1560	0	AD	TDECAY	EFFECTIVE THRUST DECAY TIME	
1097	REF	31	LAST 593	33,6215	5	1461	0	TS	LONGTIME +1		
1098	REF	470	LAST 593	33,6216	1	0000	0	CCS	A	TEST FOR - OR 0 WAITLIST CALLS	
1099				33,6217	0	6222	0	TC	+3		
1100				33,6220	0	6222	0	TC	+2		
1101	REF	212	LAST 582	33,6221	3	5501	0	CAF	ZERO		
1102	REF	208	LAST 593	33,6222	6	4516	1	AD	ONE		
1103	REF	94	LAST 589	33,6223	0	2173	0	TC	WAITLIST		
1104	REF	7	LAST 589	33,6224		64710	0	CADR	ENGINEOFF		
1105	REF	13	LAST 590	33,6225	0	2276	0	TC	PHASCHNG		
1106				33,6226		00104	1	OCT	00104		
1107	REF	14	LAST 589	33,6227	0	3430	0	TC	FLAG1DWN	REMOVE STEER FLAG	
1108				33,6230		00010	0	OCT	00010		
1109	REF	14	LAST 593	33,6231	0	2276	0	TC	PHASCHNG		
1110				33,6232		00204	1	OCT	00204		
1111	REF	5	LAST 592	33,6233	0	6241	0	TC	ENDSERV		
1112				33,6234	77576	0	0	VGALARM	EXIT		
1113	REF	20	LAST 589	33,6235	0	3007	0	TC	ALARM		
1114				33,6236		01401	0	OCT	01401		
1115	REF	161	LAST 589	33,6237	0	5654	0	TC	BANKCALL		
11155	REF	2	LAST 588	33,6240		65717	0	CADR	SHUTDWN3		
1121	REF	5	LAST 591	33,6241	1	1030	1	ENDSERV	CCS	DELTAT +1	
1122	REF	1		33,6242	3	6252	1	CAF	HALFSEC	IF BIT1 PRESENT IN DELTAT +1, SET DELTAT	
1123	REF	1		33,6243	6	6253	0	AD	TWOSEC	1/PIPADT TO 2.5SECS (FOR ABORT STEERING)	
1124	REF	6	LAST 593	33,6244	5	1027	0	TS	DELTAT		
1125				33,6245	6	0000	1	DOJBLE			

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1126	REF	6 LAST 355	33,6246	5 0755 0	TS	1/PIPADT
1127	REF	15 LAST 593	33,6247	0 2276 0	TC	PHASCHNG
1128			33,6250	00105 0	OCT	00105
1129	REF	86 LAST 583	33,6251	0 2124 1	TC	ENDOFJOB
1130			33,6252	03100 0	HALFSEC DEC	50 B-9
1131			33,6253	14400 0	TWOSEC DEC	200 B-9
1132			33,6254	00007 0	ALLABORT OCT	7

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1134			33,6255	53574 1	BURNINIT	AXC,1	2	C(X1)= 0 (TABT,ABRT,SPS1)
1135			33,6256	45415 0		ITA	TEST	=-2 (SPS2)
1136			33,6257	53576 0		AXC,1		
1137			33,6260	00001 0			0	
1138	REF	19 LAST 475	33,6261	00052 0			S2	
1139	REF	1	33,6262	00054 0			SPS2FLAG	
1140			33,6263	26266 1			+2	
1141			33,6264	00003 1			2	
1142			33,6265	76776 0		ITC	0	COMPUTE DESIRED THRUST DIRECTION
1143	REF	1	33,6266	13402 0			CALCXSC	
1144			33,6267	76575 1		RTB	1	SET UP CG ROTATION MATRIX IN PD
1145			33,6270	42176 1		S MOVE*		
1146	REF	7 LAST 460	33,6271	20271 1			ZEROVAC	
1147	REF	1	33,6272	03621 1			CGZ,1	
1148			33,6273	32007 1		STORE	6	
1149			33,6274	47575 0		NOLOD	1	
1150			33,6275	47065 1		COMP	AST,1	
1151			33,6276	00007 0			6	
1152			33,6277	32003 0		STORE	2	
1153			33,6300	42176 1		S MOVE*	0	
1154	REF	1	33,6301	03611 1			CGY,1	
1155			33,6302	32005 0		STORE	4	
1156			33,6303	47575 0		NOLOD	1	
1157			33,6304	47165 0		COMP	AXT,1	
1158			33,6305	00023 0			18D	
1159			33,6306	32015 1		STORE	12D	
1160			33,6307	74174 0	REPEAT2	V MOVE*	2	COMPUTE DESIRED SPACECRAFT ATTITUDE
1161			33,6310	51640 1		VXM	VAD*	MATRIX FROM DESIRED THRUST ATT. MATRIX
11615			33,6311	73176 0		UNIT		
1162			33,6312	00045 0			18D,1	
1163	REF	1	33,6313	01367 1			XSC	
1164	REF	2 LAST 595	33,6314	03021 1			XSC +18D,1	
1165	REF	4 LAST 557	33,6315	37065 0		STORE	XSCD +18D,1	
1166			33,6316	51575 1		TIX,1	1	
1167			33,6317	44576 0		ITCI		
1168	REF	1	33,6320	26310 1			REPEAT2	
1169	REF	20 LAST 595	33,6321	00052 0			S2	

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1170	REF	67 LAST 590	33,6322	0 4000 0	ROLLJOB	TC	INTPRET	
11701			33,6323	75575 1		AXT,1	1	GET SIN,COS OF THETAD,+1,+2
11702			33,6324	54572 0		AST,2	1TC	
11703			33,6325	00007 0			6	
11704	REF	1	33,6326	26360 0			ROLLEXIT	
11705	REF	1	33,6327	12013 0			THETRIG	
1171			33,6330	76776 0		ITC	0	COMPUTE NAV. BASE CORRINATES
1172	REF	1	33,6331	12110 1			CALCSMNB	
1173			33,6332	75776 0		VXSC	0	COMPUTE XSC
1174	REF	6 LAST 475	33,6333	01477 1			XNB	
1175	REF	1	33,6334	12241 0			COS33	
1176			33,6335	75774 1		VXSC	2	
11761			33,6336	50615 0		VAD	TEST	
11762			33,6337	47176 1		COMP		
11763	REF	5 LAST 475	33,6340	01513 1			ZNB	
11764	REF	1	33,6341	12237 1			SIN33	
11765			33,6342	77777 0			-	
11766	REF	2 LAST 595	33,6343	00054 0			SPS2FLAG	IF SPS2, INVERT XSC
11767	REF	1	33,6344	26347 0			HEADWN1	
11768			33,6345	32027 0		STORE	22D	
1181			33,6346	47573 0	HEADWN1	NOLOD	3	
1182			33,6347	41753 0		VXV	UNIT	=KR(TVC)(UNIT(XSC*RN)*YSC), WHERE
1183			33,6350	41766 0		VXV	VXSC	DT(MAX) = 10 SECS,
1184			33,6351	44772 0		VSLT	ITC	MAX ROLL GAIN = 1.0
1185	REF	10 LAST 582	33,6352	00766 0			RN	
1186	REF	4 LAST 475	33,6353	01505 0			YNB	(=YSC)
1187	REF	1	33,6354	26403 1			KR(TVC)	TVC ROLL CONTROL GAIN
1188			33,6355	00004 0			3	
1189	REF	1	33,6356	12402 1			CDUDRVE2	SUBENTRY OF CDUDRIVE
1194			33,6357	77576 0	ROLLEXIT	EXIT	0	
1195	REF	20 LAST 589	33,6360	4 0646 1		CS	FLAGWRD1	TEST IF STEER FLAG SET BEFORE SETTING
1196	REF	29 LAST 589	33,6361	7 4513 0		MASK	BIT4	BURN MAJOR MODE
1197	REF	471 LAST 593	33,6362	1 0000 0		CCS	A	
1198	REF	87 LAST 594	33,6363	0 2124 1		TC	ENDOFJOB	
1199	REF	14 LAST 589	33,6364	3 4512 0		CAF	BIT5	TEST IF BURN SWITCH IS SET TO SPS2
1200	REF	17 LAST 589	33,6365	7 0647 0		MASK	FLAGWRD2	
1201	REF	472 LAST 596	33,6366	1 0000 0		CCS	A	
1202	REF	1	33,6367	0 6377 1		TC	SPS2MODE	IT IS
1203	REF	18 LAST 596	33,6370	4 0647 0		CS	FLAGWRD2	TEST IF BURN IS SPS1
1204	REF	30 LAST 596	33,6371	7 4513 0		MASK	BIT4	
1205	REF	473 LAST 596	33,6372	1 0000 0		CCS	A	

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1206	REF	88 LAST 596	33,6373	0 2124 1	TC	ENDOFJOB	IT IS NOT
1207	REF	28 LAST 587	33,6374	0 2362 1	TC	NEWMODE	SET MAJOR MODE TO SPS1
1208			33,6375	00041 1	OCT	00041	
1209	REF	89 LAST 597	33,6376	0 2124 1	TC	ENDOFJOB	
1210	REF	29 LAST 597	33,6377	0 2362 1	SPS2MODE TC	NEWMODE	SET MAJOR MODE TO SPS2
1211			33,6400	00042 1	OCT	00042	
1212	REF	90 LAST 597	33,6401	0 2124 1	TC	ENDOFJOB	
1213			33,6402	00516 0	KR(TVC) 2DEC	0.0204	ROLL GAIN =0.05, DT =5.0 SECS
C1213			33,6403	07363 0			

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R1214 THIS ROUTINE CONTROLS THE USE OF CALCMANU IN COMPUTING, TIMING AND PERFORMING THE SEQUENCE OF MANEUVERS DURING
 R1216 A LARGE ATTITUDE MANEUVER. FLIGHT 501 INVOLVES SUCH A MANEUVER WHEN ORIENTING TO

- R1218 1. ABORT BURN INITIAL ATTITUDE AFTER A TUMBLE ARREST
 R1219 2. NOMINAL FIRST BURN INITIAL ATTITUDE
 R1220 3. LOCAL VERTICAL AFTER NOMINAL FIRST BURN
 R1221 4. NOMINAL SECOND BURN INITIAL ATTITUDE
 R1222 5. SM/CM SEPARATION ATTITUDE
 R1223 6. CM PRE-ENTRY ATTITUDE

1224	REF 162 LAST 593	33,6404	0 5654 0	ATTIJOB	TC	BANKCALL
1225	REF 4 LAST 564	33,6405	30223 1		CADR	IMUATTC
1226	REF 3 LAST 565	33,6406	0 3516 0		TC	SETHETAD
1227	REF 163 LAST 598	33,6407	0 5654 0		TC	BANKCALL
1228	REF 32 LAST 565	33,6410	30331 0		CADR	IMUSTALL
1229	REF 5 LAST 565	33,6411	0 3066 1		TC	CURTAINS
1230	REF 68 LAST 596	33,6412	0 4000 0		TC	INTPRET
1231		33,6413	76776 0	ATTIJOB1	ITC	0
1232	REF 1	33,6414	26500 0			GETMANU ✓
1233		33,6415	77576 0		EXIT	0
1234		33,6416	2 0017 0		INHINT	
1235	REF 1	33,6417	3 4516 1		CAF	0.01SEC
1236	REF 95 LAST 593	33,6420	0 2173 0		TC	WAITLIST
1237	REF 1	33,6421	66525 0		CADR	DOMANU
1238	REF 91 LAST 597	33,6422	0 2124 1		TC	ENDOFJOB
1239	REF 69 LAST 598	33,6423	0 4000 0	ATTIJOB2	TC	INTPRET
1240		33,6424	76776 0		ITC	0
1241	REF 2 LAST 598	33,6425	26500 0			GETMANU ✓
1242		33,6426	77576 0		EXIT	0
1243	REF 92 LAST 598	33,6427	0 2124 1		TC	ENDOFJOB
1244		33,6430	47576 0	SNAPOUT	NOLOD	0
1245	REF 21 LAST 558	33,6431	32701 0		STORE	THETAD
1246		33,6432	43575 1		TEST	1

TEST IF SHTDN FLAG SET (I.E. HAS FREE-

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1247			33,6433	43575 1	TEST	EXIT	FALL INTERRUPT OCCURRED)
1248	REF	1	33,6434	00025 0		SHTDNFLG	
1249	REF	1	33,6435	26447 1		JUMP7	
1250	REF	1	33,6436	00043 0		CDUXFLAG	TEST IF CDUXFLAG SET (I.E. HAS CM/SM
1251	REF	1	33,6437	26473 0		ENDMANU	SEPARATION OCCURRED)
1252	REF	19 LAST 589	33,6440	0 3416 1	TC	FLAG1UP	SET ENTRY FLAG
1253			33,6441	00004 0	OCT	00004	
1254	REF	209 LAST 593	33,6442	4 4516 0	CS	ONE	
1255	REF	47 LAST 584	33,6443	0 2312 0	TC	NEWPHASE	
1256			33,6444	00003 1	OCT	00003	
1257	REF	93 LAST 598	33,6445	0 2124 1	TC	ENDOFJOB	
1258			33,6446	43575 1	JUMP7	TEST	1
1259			33,6447	77576 0	EXIT		
1260	REF	2 LAST 582	33,6450	00022 1		COASTFLG	
1261	REF	1	33,6451	26460 1		JUMP6	
1262	REF	20 LAST 599	33,6452	0 3416 1	TC	FLAG1UP	SET SOAK FLAG FOR BEGINNING OF CONTROL
1263			33,6453	10000 0	OCT	10000	AT COLD SOAK ATTITUDE
1264	REF	30 LAST 597	33,6454	0 2362 1	TC	NEWMODE	
1265			33,6455	00022 1	OCT	00022	
1266	REF	2 LAST 599	33,6456	0 6473 1	TC	ENDMANU +1	
1267			33,6457	43576 1	JUMP6	TEST	0
1268	REF	1	33,6460	00056 1		TABTFLAG	
1269	REF	3 LAST 599	33,6461	26473 0		ENDMANU	
1270			33,6462	77576 0	EXIT	0	
1271			33,6463	2 0017 0	INHINT		
1272	REF	2 LAST 598	33,6464	3 4516 1	CAF	0.01SEC	
1273	REF	96 LAST 598	33,6465	0 2173 0	TC	WAITLIST	
1274	REF	11 LAST 571	33,6466	64527 0	CADR	ATTNOFF	
12742	REF	90 LAST 579	33,6467	3 5503 1	CAF	TWO	SET VGCNTR FOR THREE PASSES THROUGH
12744	REF	16 LAST 590	33,6470	5 1446 0	TS	VGCNTR	CALCVGB BEFORE STARTING ABORT STEERING
1275	REF	4 LAST 599	33,6471	0 6473 1	TC	ENDMANU +1	
1276			33,6472	77576 0	ENDMANU	EXIT	0
1277	REF	210 LAST 599	33,6473	4 4516 0	CS	ONE	
1278	REF	48 LAST 599	33,6474	0 2312 0	TC	NEWPHASE	
1279			33,6475	00002 0	OCT	2	

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1280 REF 94 LAST 599 33,6476 0 2124 1

TC ENDOFJOB

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1281			33,6477	45575 1	GETMANU	ITA	1
1282			33,6500	76776 0		ITC	
1283	REF	1	33,6501	01475 0			EXITCAD1
1284	REF	1	33,6502	14001 0			CALCMANU
1285			33,6503	43576 1		TEST	0
1286	REF	1	33,6504	00046 0			CALCFLAG
1287	REF	1	33,6505	26431 0			SNAPOUT
1288			33,6506	53574 1		AXC,1	2
1289			33,6507	43455 1		TEST	AXC,1
1290			33,6510	43455 1		TEST	AXC,1
1291			33,6511	00001 0			0
1292	REF	1	33,6512	00045 0			ROLLFLAG
1293	REF	1	33,6513	26521 0			SETDTH
1294			33,6514	00003 1			2
1295	REF	2 LAST 599	33,6515	00043 0			CDUXFLAG
1296	REF	2 LAST 601	33,6516	26521 0			SETDTH
1297			33,6517	00005 1			4
1298			33,6520	44176 1	SETDTH	DMOVE*	0
1299	REF	1	33,6521	33461 1			DTH,1
1300	REF	1	33,6522	33453 0		STORE	DTHETA
1301			33,6523	44576 0		ITCI	0
1302	REF	2 LAST 601	33,6524	01475 0			EXITCAD1

1303 REF 27 LAST 580

4516 0.01SEC EQUALS BIT1

CALC = 4

ROLL #1 2

ROLL = 1 CDUX #1 3.6

ROLL = 1 CDUX = 1 7.5

CDUX = 1
 ROLL #1
 ROLL = 1

ROLL #1
 ROLL = 1

(2, 2, 1)
 (2, 2, 1)
 (2, 2, 1)

(2, 2, 1)
 (2, 2, 1)

W. Y. R

0 → 2

2 → 3.6

4 → 7.5

if ROLL = 1

-0 → X1

ROLL #1

-2 → X1

CDUXFLAG #1

-4 → X1

if ROLL

if CDUX

if

2°
3.6°

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1304	REF	2	LAST	583	33,6525	0	3440	1	DOMANU	TC	FLAG2UP	SET DOMANU FLAG
1305					33,6526		01000	0	DOMANMSK	OCT	01000	
1306	REF	19	LAST	596	33,6527	4	0647	0	DOMANU1	CS	FLAGWRD2	KILL DOMANU IF CALC FLAG NOT SET
1307	REF	26	LAST	580	33,6530	7	4504	0		MASK	BIT11	(CALCMASK)
1308	REF	474	LAST	596	33,6531	1	0000	0		CCS	A	
1309	REF	1			33,6532	0	6552	0		TC	DOMANOFF	
1310	REF	1			33,6533	3	6526	0		CAF	DOMANMSK	TEST IF DOMAN FLAG SET
1311	REF	20	LAST	602	33,6534	7	0647	0		MASK	FLAGWRD2	
1312	REF	475	LAST	602	33,6535	1	0000	0		CCS	A	
1313	REF	1			33,6536	0	6543	0		TC	SETMANU	IT IS
1314	REF	1			33,6537	3	6556	1		CAF	TPAD +1	IT IS NOT. START NEXT MANEUVER IN TPAD
1315	REF	97	LAST	599	33,6540	0	2173	0		TC	WAITLIST	SECS
1316	REF	2	LAST	598	33,6541		66525	0		CADR	DOMANU	
1317	REF	75	LAST	580	33,6542	0	2256	1		TC	TASKOVER	
1318	REF	1			33,6543	3	2156	1	SETMANU	CAF	PRI023	ESTABLISH MANUJOB
1319	REF	23	LAST	587	33,6544	0	2046	1		TC	FINDVAC	
1320	REF	1			33,6545		66560	1		CADR	MANUJOB	
1321	REF	1			33,6546	3	6557	0		CAF	0.5SEC	RECALL DOMANU1 IN 0.5 SECS
1322	REF	98	LAST	602	33,6547	0	2173	0		TC	WAITLIST	
1323	REF	1			33,6550		66527	1		CADR	DOMANU1	
1324	REF	76	LAST	602	33,6551	0	2256	1		TC	TASKOVER	
1325	REF	2	LAST	590	33,6552	0	3452	1	DOMANOFF	TC	FLAG2DWN	REMOVE DOMANU FLAG
1326					33,6553		01000	0		OCT	01000	
1327	REF	77	LAST	602	33,6554	0	2256	1		TC	TASKOVER	
1328					33,6555	00000	1		TPAD	DEC	0.0	
1329					33,6556	00764	1		5SEC	DEC	500	
1330					33,6557	00062	0		0.5SEC	DEC	50	
1331	REF	70	LAST	598	33,6560	0	4000	0	MANUJOB	TC	INTPRET	
1332					33,6561	66775	1			DSJ	1	TEST IF THETAMAN LESS THAN DTHETA.
1333					33,6562	43633	0			BPL	COMP	
1334	REF	2	LAST	601	33,6563	01453	1				DTHETA	
1335	REF	1			33,6564	01455	1				THETAMAN	
1336	REF	1			33,6565	26572	0				JUMP4	IT IS. STORE REMAINING THETAMAN
1337	REF	2	LAST	602	33,6566	33455	0			STORE	THETAMAN	

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1338			33,6567	76776 0	ITC	0	
1339	REF	1	33,6570	26601 1		DRIVECDU	
1340			33,6571	45176 0	JUMP4	DMOVE	0
1341	REF	3 LAST 602	33,6572	01455 1		THETAMAN	STORE REMAINING THETAMAN IN DTHETA
1342	REF	3 LAST 602	33,6573	33453 0		DTHETA	
1343			33,6574	77576 0	EXIT	0	
1344	REF	3 LAST 602	33,6575	0 3452 1	TC	FLAG2DWN	REMOVE DOMAN FLAG
1345			33,6576	01000 0	OCT	01000	
1346	REF	71 LAST 602	33,6577	0 4000 0	TC	INTPRET	
1347			33,6600	75775 0	DRIVECDU	VXSC	1
1348			33,6601	44772 0		VSLT	ITC
1349	REF	1	33,6602	01323 1		WC	
1350	REF	4 LAST 603	33,6603	01453 1		DTHETA	
1351			33,6604	00002 0		1	
1352	REF	2 LAST 592	33,6605	12375 0		CDUDRIVE	
1353			33,6606	43576 1	TEST	0	TEST IF DOMAN FLAG SET
1354	REF	1	33,6607	00047 1		DOMANFLG	
1355	REF	1	33,6610	26614 0		NEXTMAN	IT IS NOT. GET NEXT MANEUVER
1356			33,6611	77576 0	EXIT	0	
1357	REF	95 LAST 600	33,6612	0 2124 1	TC	ENDOFJOB	
1365			33,6613	77576 0	NEXTMAN	EXIT	0
1366			33,6614	2 0017 0	INHINT		
1367	REF	4 LAST 587	33,6615	3 2146 0	CAF	PRI012	ESTABLISH ATT1JOB2 TO COMPUTE NEXT MAN.
1368	REF	24 LAST 602	33,6616	0 2046 1	TC	FINDVAC	
1369	REF	1	33,6617	66423 1	CADR	ATT1JOB2	
1370	REF	96 LAST 603	33,6620	0 2124 1	TC	ENDOFJOB	

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1371	REF	31 LAST 599	33,6621	0 2362 1	SOAKINIT TC	NEWMODE	SET MAJOR MODE TO MANEUVER TO COLD SOAK
1372			33,6622	00021 1	OCT	00021	
1373	REF	72 LAST 603	33,6623	0 4000 0	TC	INTPRET	
1374			33,6624	43176 0	SMOVE	0	
13745	REF	1	33,6625	01676 1		ANGLEZ	COLD SOAK - Z GIMBAL ANGLE
1375			33,6626	43176 0	SMOVE	0	
13755	REF	1	33,6627	01675 1		ANGLEY	COLD SOAK - Y GIMBAL ANGLE
1376			33,6630	43175 0	SMOVE	1	
13765			33,6631	41033 1	VDEF	COMP	
1377	REF	1	33,6632	01674 0		ANGLEX	COLD SOAK - X GIMBAL ANGLE
13775	REF	4 LAST 561	33,6633	33315 0	STORE	CDUTEMP	
13776			33,6634	75575 1	AXT,1	1	
1378			33,6635	76776 0	ITC		
13781			33,6636	00007 0		6	
13785	REF	2 LAST 561	33,6637	12041 1		SINCOS	
1379			33,6640	76776 0	ITC	0	
13795	REF	2 LAST 596	33,6641	12110 1		CALCSMNB	NAV BASE IN SM COORDINATES
1380			33,6642	76776 0	ITC	0	
13805	REF	1	33,6643	12213 1		CALCNBSC	SC IN SM COORDINATES
1383			33,6644	75176 0	VMOVE	0	
13835	REF	3 LAST 595	33,6645	01367 1		XSC	
1384	REF	5 LAST 595	33,6646	33411 0	STORE	XSCD	
13845			33,6647	75176 0	VMOVE	0	
1385	REF	1	33,6650	01375 1		YSC	
13855	REF	3 LAST 558	33,6651	33417 0	STORE	YSCD	
1386			33,6652	75176 0	VMOVE	0	
13865	REF	1	33,6653	01403 1		ZSC	
1387	REF	3 LAST 558	33,6654	33425 1	STORE	ZSCD	
1388			33,6655	76776 0	ITC	0	
1389	REF	2 LAST 125	33,6656	26414 1		ATTIJOB1	BRANCH TO DO MANEUVER

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1390	REF	213	LAST	593	33,6657	4	5501	1	SOAKTASK	CS	ZERO	COME HERE FIRST TIME ONLY. CLEAR OUT DELV FOR FREE-FALL COMPUTATIONS
1391	REF	12	LAST	590	33,6660	5	1001	1		TS	DELV	
1392	REF	13	LAST	605	33,6661	5	1002	1		TS	DELV +1	
1393	REF	14	LAST	605	33,6662	5	1003	0		TS	DELV +2	
1394	REF	15	LAST	605	33,6663	5	1004	1		TS	DELV +3	
1395	REF	16	LAST	605	33,6664	5	1005	0		TS	DELV +4	
1396	REF	17	LAST	605	33,6665	5	1006	0		TS	DELV +5	
1397	REF	28	LAST	593	33,6666	3	4500	0	SOAKTSK1	CAF	BIT15	TEST IF COAST FLAG SET
1398	REF	21	LAST	596	33,6667	7	0646	1		MASK	FLAGWRD1	
1399	REF	476	LAST	602	33,6670	1	0000	0		CCS	A	
1400	REF	45	LAST	579	33,6671	0	3062	0		TC	CCSHOLE	
1401	REF	78	LAST	602	33,6672	0	2256	1		TC	TASKOVER	
1402	REF	14	LAST	573	33,6673	3	5362	0		CAF	SEVEN	
1403	REF	49	LAST	599	33,6674	0	2312	0		TC	NEWPHASE	
1404					33,6675		00005	1		OCT	00005	
1405	REF	25	LAST	593	33,6676	4	0036	0	RED05.7	CS	TIME1	
1406	REF	6	LAST	580	33,6677	5	0667	0		TS	TBASE5	
1407	REF	5	LAST	577	33,6700	3	4513	1		CAF	EIGHT	
1408	REF	50	LAST	605	33,6701	0	2312	0		TC	NEWPHASE	
1409					33,6702		00005	1		OCT	00005	
1410	REF	1			33,6703	3	6712	0		CAF	2SEC33	
1411	REF	99	LAST	602	33,6704	0	2173	0		TC	WAITLIST	
1412	REF	4	LAST	132	33,6705		66666	1		CADR	SOAKTSK1	
1413	REF	1			33,6706	3	2147	1		CAF	PRI013	
1414	REF	25	LAST	603	33,6707	0	2046	1		TC	FINDVAC	
1415	REF	2	LAST	132	33,6710		66713	1		CADR	SOAKJOB	
1416	REF	79	LAST	605	33,6711	0	2256	1		TC	TASKOVER	
1421					33,6712		00310	0	2SEC33	DEC	200	

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1423	REF	22 LAST 605	33,6713	4 0646 1	SOAKJOB	CS	FLAGWRD1	TEST SOAKFLAG
1424	REF	12 LAST 571	33,6714	7 4502 0		MASK	BIT13	
1426	REF	477 LAST 605	33,6715	1 0000 0		CCS	A	
1427	REF	1	33,6716	0 7030 0		TC	SOAKEXIT	SOAKFLAG OFF
1428	REF	73 LAST 604	33,6717	0 4000 0		TC	INTPRET	SOAKFLAG ON
1467			33,6720	45176 0		DMOVE	0	SET DELTAT TO 4 SECS FOR ORBITAL INT.
1468	REF	1	33,6721	27036 1			DT4SEC	
1469	REF	7 LAST 593	33,6722	33030 1		STORE	DELTAT	
14691			33,6723	75176 0		VMOVE	0	SAVE VRECT AND RRECT IN CASE OF RESTARTS
14692	REF	17 LAST 582	33,6724	01101 0			RRECT	
14693	REF	1	33,6725	33656 1		STORE	RRECCMEM	
14694			33,6726	75176 0		VMOVE	0	
14695	REF	14 LAST 582	33,6727	01107 0			VRECT	
14696	REF	1	33,6730	33664 0		STORE	VRECCMEM	
1470			33,6731	77576 0		EXIT	0	
1471	REF	16 LAST 594	33,6732	0 2276 0		TC	PHASCHNG	
1472			33,6733	01205 1		OCT	01205	
1473	REF	15 LAST 593	33,6734	0 3430 0	REDO5.10	TC	FLAG1DWN	REMOVE COAST, SOAK FLAGS
1474			33,6735	50000 1		OCT	50000	
1475	REF	74 LAST 606	33,6736	0 4000 0		TC	INTPRET	
14751			33,6737	75176 0		VMOVE	0	RESTORE RRECT AND VRECT FROM CMEMORY.
14752	REF	2 LAST 606	33,6740	01656 0			RRECCMEM	
14753	REF	18 LAST 606	33,6741	33101 1		STORE	RRECT	
14754			33,6742	75176 0		VMOVE	0	
14755	REF	2 LAST 606	33,6743	01664 1			VRECCMEM	
14756	REF	15 LAST 606	33,6744	33107 1		STORE	VRECT	
1476			33,6745	76776 0		ITC	0	BRANCH TO DO ORBITAL INTEGRATION
1477	REF	1	33,6746	20001 1			AVETOMD1	
1478			33,6747	75175 0		VMOVE	1	
14781			33,6750	44776 1		VSLT		
1479	REF	2 LAST 330	33,6751	01231 0			RIG-4SEC	
14791	REF	12 LAST 582	33,6752	00002 0			RSCALE -15D	
1480	REF	11 LAST 596	33,6753	32766 1		STORE	RN	SET RN TO 4 SECS BEFORE IGNITION
1481			33,6754	76575 1		RTB	1	
1482			33,6755	76776 0		ITC		
1483	REF	5 LAST 592	33,6756	20265 1			FRESHPD	
1484	REF	2 LAST 355	33,6757	21643 0			CALCGRV	
14842			33,6760	75176 0		VMOVE	0	

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14844	REF	2 LAST 587	33,6761	01107 0		VIGNITION	
14846	REF	10 LAST 587	33,6762	32774 1	STORE	VN	SET VN AT IGNITION
1485			33,6763	75575 1	AXT,1	1	GET VR AT 4 SECS BEFORE IGNITION
1486			33,6764	67572 0	SXA,1	ITC	
1487	REF	1	33,6765	12462 1		501SPS2	
1488	REF	5 LAST 572	33,6766	01471 1		VRCADR	
1489	REF	3 LAST 590	33,6767	12421 0		CALCVGB	
1493			33,6770	75175 0	VMOVE	1	
14931			33,6771	44776 1	VSLT		
1494	REF	2 LAST 329	33,6772	01101 0		RIGNITION	
14941	REF	13 LAST 606	33,6773	00002 0		RSCALE -15D	
1495	REF	12 LAST 606	33,6774	32766 1	STORE	RN	SET RN AT IGNITION
1496			33,6775	76776 0	ITC	0	
1497	REF	3 LAST 606	33,6776	21643 0		CALCGRV	
1498			33,6777	76776 0	ITC	0	
1499	REF	4 LAST 607	33,7000	12421 0		CALCVGB	GET VR AT IGNITION. COMPUTE CBDT
1500			33,7001	76776 0	ITC	0	
1501	REF	2 LAST 587	33,7002	26256 1		BURNINIT	INITIALISE BURN
1502			33,7003	45176 0	DMOVE	0	
1503	REF	1	33,7004	27034 0		DT2SEC	
1504	REF	8 LAST 606	33,7005	33030 1	STORE	DELTAT	RESTORE DELTAT TO 2 SECS FOR SPS2
1505			33,7006	75176 0	VMOVE	0	
1506	REF	11 LAST 571	33,7007	01223 0		VAVEGON	
1507	REF	11 LAST 607	33,7010	32774 1	STORE	VN	INITIALISE CALCRVG FOR TURN-ON
1508			33,7011	75175 0	VMOVE	1	
15081			33,7012	44776 1	VSLT		
1509	REF	10 LAST 330	33,7013	01215 0		RAVEGON	
15091	REF	14 LAST 607	33,7014	00002 0		RSCALE -15D	
1510	REF	13 LAST 607	33,7015	32766 1	STORE	RN	
1511			33,7016	76776 0	ITC	0	
1512	REF	4 LAST 607	33,7017	21643 0		CALCGRV	
1513			33,7020	77576 0	EXIT	0	
1514	REF	211 LAST 599	33,7021	3 4516 1	CAF	ONE	SET VGCNTR FOR TWO PASSES THRU CALCVGB
1515	REF	17 LAST 599	33,7022	5 1446 0	TS	VGCNTR	BEFORE SPS2 STEERING
1516	REF	32 LAST 604	33,7023	0 2362 1	TC	NEWMODE	SET MAJOR MODE TO READY FOR R,V,T UPDATE
1517			33,7024	00024 1	OCT	00024	
1520	REF	17 LAST 606	33,7025	0 2276 0	TC	PHASCHNG	CHANGE PHASE TO 5.20 TO ENABLE V76 RST.

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1521		33,7026	02405 1	OCT	02405	2
1523	REF 97 LAST 603	33,7027	0 2124 1	TC	ENDOFJOB	
1527	REF 18 LAST 607	33,7030	0 2276 0	SOAKEXIT TC	PHASCHNG	3
1528		33,7031	01305 0	OCT	01305	
1529	REF 98 LAST 608	33,7032	0 2124 1	TC	ENDOFJOB	
1530		33,7033	14400 0	DT2SEC	2DEC	
C1530		33,7034	00000 1			
1531		33,7035	31000 0	DT4SEC	2DEC	
C1531		33,7036	00000 1			
15345			24,6201	BANK	24	6

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P1535 UPTASK AND UPJOB OCCUR 120 SECS BEFORE PLUSX2 AND INCORPORATE STATE VECTOR UPDATES VIA VERB 76

1537	REF	1		24,6201	3 6352 0	UPTASK	CAF	10SEC24	SCHEDULE FDAI ALIGN OFF IN 10 SECS
1538	REF	100 LAST 605		24,6202	0 2173 0		TC	WAITLIST	
1539	REF	1		24,6203	50327 1		CADR	FDAIOFF2	
15392	REF	9 LAST 576		24,6204	0 3373 0		TC	RELAYON	5 SET SCS FDAI ALIGN DISCRETE (C31)
15394				24,6205	40400 1		OCT	40400	
1540	REF	1		24,6206	3 4373 1		CAF	PRI06	ESTABLISH UPJOB
1541	REF	26 LAST 605		24,6207	0 2046 1		TC	FINDVAC	
1542	REF	2 LAST 129		24,6210	50225 1		CADR	UPJOB	
1543	REF	15 LAST 605		24,6211	3 5362 0		CAF	SEVEN	
1544	REF	51 LAST 605		24,6212	0 2312 0		TC	NEWPHASE	
1545				24,6213	00004 0		OCT	00004	
1546	REF	26 LAST 605		24,6214	4 0036 0		CS	TIME1	
1547	REF	8 LAST 593		24,6215	5 0666 1		TS	TBASE4	
15471	REF	212 LAST 607		24,6216	4 4516 0		CS	ONE	REMOVE UPDATE RESTART CAPABILITY
15472	REF	52 LAST 609		24,6217	0 2312 0		TC	NEWPHASE	
15473				24,6220	00005 1		OCT	5	
1548	REF	6 LAST 605		24,6221	3 4513 1		CAF	EIGHT	
1549	REF	53 LAST 609		24,6222	0 2312 0		TC	NEWPHASE	
1550				24,6223	00004 0		OCT	00004	
1551	REF	80 LAST 605		24,6224	0 2256 1		TC	TASKOVER	
1552	REF	33 LAST 607		24,6225	0 2362 1	UPJOB	TC	NEWMODE	REVERT TO ATTITUDE HOLD WITH NO V76.
1553				24,6226	00022 1		OCT	22	
1554	REF	4 LAST 263		24,6227	3 2566 0		CAF	LDNLST1	REVERT BACK TO DOWNLIST 1.
1555	REF	6 LAST 263		24,6230	5 0672 1		TS	DNLSTADR	
1556	REF	75 LAST 606		24,6231	0 4000 0		TC	INTPRET	
1557				24,6232	43574 0		TEST	2	NO FURTHER ACTION IF NO V76 COMPLETED.
1558				24,6233	70742 1		DAD	DAD	IF SO, FORM DT FOR FINAL INTEGRATION.
1559				24,6234	66776 1		DSJ		
1560	REF	2 LAST 328		24,6235	00023 0			UPDATFLG	
1561	REF	2 LAST 328		24,6236	10310 1			NOSTATE	
1562	REF	9 LAST 583		24,6237	01463 1			TCUTOFF	
1563	REF	5 LAST 583		24,6240	01557 1			TCOAST	
1564	REF	1		24,6241	10351 1			DP120SEC	
1565	REF	22 LAST 263		24,6242	01115 0			STBUFF +12D	
1566	REF	5 LAST 583		24,6243	33211 0		STORE	TAVEGON	
156602				24,6244	52775 0		MXV	1	

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156603			24,6245	44776 1	VSLT		
156604	REF	19 LAST 606	24,6246	01101 0		RRECT	
156606	REF	12 LAST 355	24,6247	01052 1		REFSMMAT	
156607			24,6250	00002 0		1	THIS ASSUMES THAT UPDATE SCALED 2(26)M
156608	REF	3 LAST 606	24,6251	33656 1	STORE	RRECCMEM	
15661			24,6252	52775 0	MXV	1	
156611			24,6253	44776 1	VSLT		
156612	REF	16 LAST 606	24,6254	01107 0		VRECT	
156614	REF	13 LAST 610	24,6255	01052 1		REFSMMAT	
156615			24,6256	00002 0		1	THIS ASSUMES THAT UPDATE SCALED 2(7)M/CS
156616	REF	3 LAST 606	24,6257	33664 0	STORE	VRECCMEM	
156618			24,6260	77576 0	EXIT	0	
15662	REF	19 LAST 608	24,6261	0 2276 0	TC	PHASCHNG	
156622			24,6262	03504 0	OCT	03504	
156624	REF	76 LAST 609	24,6263	0 4000 0	RED04.29 TC	INTPRET	
156626			24,6264	75176 0	VMOVE	0	
156628	REF	4 LAST 610	24,6265	01656 0		RRECCMEM	
15663	REF	20 LAST 610	24,6266	33101 1	STORE	RRECT	
156632			24,6267	75176 0	VMOVE	0	
156634	REF	4 LAST 610	24,6270	01664 1		VRECCMEM	
156636	REF	17 LAST 610	24,6271	33107 1	STORE	VRECT	
1567			24,6272	76776 0	ITC	0	
1568	REF	1	24,6273	20010 1		AVETOMD2	
1569			24,6274	75176 0	VMOVE	0	LEAVE RAVEGON, VAVEGON IN RN, VN.
1570	REF	12 LAST 607	24,6275	01223 0		VAVEGON	
1571	REF	12 LAST 607	24,6276	32774 1	STORE	VN	
1572			24,6277	44776 1	VSLT	0	
1573	REF	11 LAST 607	24,6300	01215 0		RAVEGON	
15735	REF	15 LAST 607	24,6301	00002 0		RSCALE -15D	
1574	REF	14 LAST 607	24,6302	32766 1	STORE	RN	
1575			24,6303	76575 1	RTB	1	
1576			24,6304	76776 0	ITC		
1577	REF	6 LAST 606	24,6305	20265 1		FRESHPD	
1578	REF	5 LAST 607	24,6306	21643 0		CALCGRAV	
1579			24,6307	76776 0	NOSTATE ITC	0	GO GET TFF
157905	REF	2 LAST 582	24,6310	22001 0		CALCTFF	
15791			24,6311	66775 1	DSU	1	SEE IF TFF IS TOO HIGH
157912			24,6312	43775 0	BPL	EXIT	
157914	REF	9 LAST 585	24,6313	01457 0		TFF	
157916	REF	1	24,6314	10356 0		TFFLIMIT	

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157918	REF	1	24,6315	10324	0		TFF2DOWN	YES
15792	REF	34 LAST 609	24,6316	0 2362	1	SETMM23	TC	NEWMODE
15794			24,6317	00023	0		OCT	23
1580	REF	20 LAST 610	24,6320	0 2276	0		TC	PHASCHNG
1581			24,6321	01104	0		OCT	01104
1582	REF	4 LAST 565	24,6322	0 3151	1	REDO4.9	TC	JAMTERM
								FLUSH OUT V76 IF STILL IN PINBALL
158202			24,6323	77576	0	TFF2DOWN	EXIT	0
158204	REF	3 LAST 584	24,6324	0 3474	0		TC	STATEDWN
158206			24,6325	10000	0		OCT	10000
158208	REF	1	24,6326	0 6316	0		TC	SETMM23
								RESET TFF2 FLAG
15821	REF	9 LAST 577	24,6327	0 3405	0	FDAIOFF2	TC	RELAYOFF
15822			24,6330	40400	1		OCT	40400
								REMOVE SCS FDAI ALIGN DISCRETE (C31)
15823	REF	1	24,6331	3 6353	1		CAF	105SEC
15824	REF	101 LAST 609	24,6332	0 2173	0		TC	WAITLIST
15825	REF	4 LAST 131	24,6333	50335	1		CADR	PREAVGON
15826	REF	81 LAST 609	24,6334	0 2256	1		TC	TASKOVER
								31
1583	REF	1	24,6335	3 6354	0	PREAVGON	CAF	5SEC24
1584	REF	102 LAST 611	24,6336	0 2173	0		TC	WAITLIST
1585	REF	2 LAST 130	24,6337	50357	0		CADR	AVGON
15852	REF	10 LAST 611	24,6340	0 3405	0		TC	RELAYOFF
15854			24,6341	40400	1		OCT	40400
								BACK-UP FDAI ALIGN OFF IN CASE OF RESTARTS
1586	REF	16 LAST 606	24,6342	0 3430	0		TC	FLAG1DWN
1587			24,6343	20000	0		OCT	20000
								REMOVE UPDAT FLAG TO KILL ORB. INTEGR.
1588	REF	2 LAST 559	24,6344	3 3553	1		CAF	TWENTY7
1589	REF	54 LAST 609	24,6345	0 2312	0		TC	NEWPHASE
1590			24,6346	00004	0		OCT	4
1591	REF	82 LAST 611	24,6347	0 2256	1		TC	TASKOVER
1592			24,6350	00000	1	DP120SEC	2DEC	12000
C1592			24,6351	27340	0			
15922			24,6352	01750	1	10SEC24	DEC	1000
15924			24,6353	24404	1	105SEC	DEC	10500

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1593	24,6354	00764 1	5SEC24 DEC	500
1594	24,6355	34631 1	TFFLIMIT 2DEC	.9
C1594	24,6356	23146 0		

JUST SO ITS HIGH

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P1595 SHUTDOWN IS A CLOSED SUBROUTINE WHICH IS ENTERED PRIOR TO CM/SM SEPARATION. ITS PURPOSE IS TO CLOSE OUT ALL SCS
 R1597 FUNCTIONS NOT CONCERNED WITH SEPARATION AND ENTRY, AND TO INITIATE THOSE THAT ARE

1600				33,7037		BANK 33	
1601				33,7037	2 0017 0	SHUTDOWN INHINT	
1602	REF	2 LAST 341		33,7040	3 2162 0	CAF PRI027	ESTABLISH HIGH PRIO JOB TO DO SHUTDOWN
1603	REF	26 LAST 584		33,7041	0 2052 1	TC NOVAC	
1604	REF	5 LAST 584		33,7042	11147 0	CADR ENEMA	CLEANS OUT EXEC AND WAITLIST.
1605				33,7043	2 0016 1	RELINT	
1606	REF	213 LAST 609		33,7044	3 4516 1	CAF ONE	EFFECTIVELY STOP ANY WAITLIST ACTIVITY
1607	REF	8 LAST 147		33,7045	5 0037 0	TS TIME3	
1610	REF	214 LAST 613		33,7046	4 4516 0	CS ONE	
1611	REF	55 LAST 611		33,7047	0 2312 0	TC NEWPHASE	
1612				33,7050	00004 0	OCT 00004	
1613	REF	215 LAST 613		33,7051	4 4516 0	CS ONE	
1614	REF	56 LAST 613		33,7052	0 2312 0	TC NEWPHASE	
1615				33,7053	00002 0	OCT 00002	
1616	REF	10 LAST 573		33,7054	3 3232 1	CAF TEN	
1617	REF	57 LAST 613		33,7055	0 2312 0	TC NEWPHASE	
1618				33,7056	00003 1	OCT 00003	
1619	REF	8 LAST 349		33,7057	0 5702 1	TC SWRETURN	(LOCATION OF TC Q)
1622				33,7060	2 0017 0	SHUTJOB INHINT	
1623	REF	13 LAST 606		33,7061	4 4502 0	CS BIT13	SHUT OFF ENGINE BIT
1624	REF	48 LAST 571		33,7062	7 0011 0	MASK OUT1	
1625	REF	49 LAST 613		33,7063	5 0011 1	TS OUT1	
1626	REF	11 LAST 611		33,7064	0 3405 0	TC RELAYOFF	REMOVE SCS +X TRANS DISCRETE
1627				33,7065	40020 1	OCT 40020	
1628	REF	17 LAST 611		33,7066	0 3430 0	TC FLAG1DWN	REMOVE DVMON, STEER, INIT FLAGS
1629				33,7067	00430 0	OCT 00430	
1630	REF	164 LAST 598		33,7070	0 5654 0	TC BANKCALL	SET IMUCDU TO ATT. CONTROL (MAY BE RE-
1631	REF	5 LAST 598		33,7071	30223 1	CADR IMUATTC	DUNDANT CALL)
1632	REF	4 LAST 598		33,7072	0 3516 0	TC SETHETAD	FORCE THETAD, +1, +2 TO READ CDUX,Y,Z
1633	REF	1		33,7073	3 6254 1	CAF ALLABORT	TEST IF ANY ABORT BURN SET
1634	REF	21 LAST 602		33,7074	7 0647 0	MASK FLAGWRD2	

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1635	REF 478 LAST 606	33,7075	1 0000 0	CCS	A	
1636		33,7076	0 7101 0	TC	+3	IT IS
1637	REF 10 LAST 584	33,7077	0 3504 0	TC	SETBRNSW	IT IS NOT. SET BURN TO LAST (SPS4)
1638		33,7100	00100 0	OCT	00100	
1639	REF 165 LAST 613	33,7101	0 5654 0	TC	BANKCALL	WAIT FOR MODE SWITCH TO COMPLETE
1640	REF 33 LAST 598	33,7102	30331 0	CADR	IMUSTALL	
1641	REF 6 LAST 598	33,7103	0 3066 1	TC	CURTAINS	CATCH-ALL FOR MODE SWITCH FAILURES
16412	REF 27 LAST 609	33,7104	4 0036 0	CS	TIME1	
16414	REF 5 LAST 572	33,7105	5 0665 1	TS	TBASE3	
1642	REF 17 LAST 255	33,7106	3 4505 0	CAF	BIT10	TEST IF INTP FLAG SET (I.E. HAS 95 SEC
1643	REF 23 LAST 606	33,7107	7 0646 1	MASK	FLAGWRD1	INTERUPT OCCURRED)
1644	REF 479 LAST 614	33,7110	1 0000 0	CCS	A	
1645	REF 1	33,7111	0 7116 0	TC	TESTGMP	IT HAS NOT
1646	REF 13 LAST 495	33,7112	3 4510 1	CAF	BIT7	TEST IF INT1 FLAG SET (I.E. HAS 200 SEC
1647	REF 24 LAST 614	33,7113	7 0646 1	MASK	FLAGWRD1	INTERUPT OCCURRED)
1648	REF 480 LAST 614	33,7114	1 0000 0	CCS	A	
1649	REF 1	33,7115	0 7126 0	TC	SHUTJOB1	IT HAS
1650	REF 11 LAST 285	33,7116	3 4507 1	TESTGMP	CAF	BIT8
1651	REF 93 LAST 531	33,7117	7 0725 0	MASK	DSPTAB +13D	TEST IF SCS GMP DISCRETE SET
1652	REF 481 LAST 614	33,7120	1 0000 0	CCS	A	
1653	REF 1	33,7121	0 7147 1	TC	GMPOFF1	IF IT IS, TURN IT OFF
1654	REF 15 LAST 479	33,7122	3 4515 1	CAF	BIT2	TEST IF DV MODE SET
1655	REF 94 LAST 614	33,7123	7 0725 0	MASK	DSPTAB +13D	
1656	REF 482 LAST 614	33,7124	1 0000 0	CCS	A	
1657	REF 1	33,7125	0 7156 1	TC	DVMODOF1	IF IT IS, TURN IT OFF
1658	REF 25 LAST 614	33,7126	4 0646 1	SHUTJOB1	CS	FLAGWRD1
1659	REF 22 LAST 581	33,7127	7 4503 1	MASK	BIT12	TEST IF SHUTDN FLAG SET
1660	REF 483 LAST 614	33,7130	1 0000 0	CCS	A	
1661	REF 1	33,7131	0 7215 0	TC	SETATTC	IT IS NOT. SHUTDOWN NOT DUE TO TFF
1662	REF 18 LAST 614	33,7132	3 4505 0	CAF	BIT10	TEST IF THIS IS 200 OR 95 SEC INTERRUPT
1663	REF 26 LAST 614	33,7133	7 0646 1	MASK	FLAGWRD1	(INTP FLAG)
1664	REF 484 LAST 614	33,7134	1 0000 0	CCS	A	
1665	REF 1	33,7135	0 7211 1	TC	SETSEP	200 SEC INTERRUPT
1666	REF 4 LAST 603	33,7136	0 3452 1	KILLMANU	TC	FLAG2DWN
1667		33,7137	02000 0	OCT	02000	REMOVE CALC FLAG (KILL ANY MANEUVER)
1668		33,7140	2 0017 0	INHINT		ALLOW 5 SECS FOR CSM TO SETTLE FROM ANY
1669	REF 1	33,7141	3 6556 1	CAF	5SEC	ATTITUDE MANEUVER BEFORE SEPARATING
1670	REF 103 LAST 611	33,7142	0 2173 0	TC	WAITLIST	
1671	REF 2 LAST 126	33,7143	67260 1	CADR	CDUXTASK	

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1674	REF	21	LAST	611	33,7144	0	2276	0	TC	PHASCHNG	
1675					33,7145		01303	0	OCT	01303	
1676	REF	99	LAST	608	33,7146	0	2124	1	TC	ENDOFJOB	
1677					33,7147	2	0017	0	GMPOFF1	INHINT	
1678	REF	2	LAST	605	33,7150	3	6712	0	CAF	25SEC33	CALL FOR SCS GMP OFF IN 2 SECS
1679	REF	104	LAST	614	33,7151	0	2173	0	TC	WAITLIST	
1680	REF	2	LAST	128	33,7152		67166	1	CADR	GMPOFF2	
16802	REF	22	LAST	615	33,7153	0	2276	0	TC	PHASCHNG	
16804					33,7154		02703	1	OCT	02703	
1681	REF	100	LAST	615	33,7155	0	2124	1	TC	ENDOFJOB	
1682					33,7156	2	0017	0	DVMODOF1	INHINT	
1683	REF	1			33,7157	3	7221	1	CAF	3.5SEC33	CALL FOR DV MODE OFF IN 3.5 SECS
1684	REF	105	LAST	615	33,7160	0	2173	0	TC	WAITLIST	
1685	REF	3	LAST	128	33,7161		67177	1	CADR	DVMODOF2	
1686					33,7162	2	0016	1	RELINT		
16862	REF	23	LAST	615	33,7163	0	2276	0	TC	PHASCHNG	
16864					33,7164		03003	1	OCT	03003	
1687	REF	101	LAST	615	33,7165	0	2124	1	TC	ENDOFJOB	
1688	REF	12	LAST	613	33,7166	0	3405	0	GMPOFF2	TC	RELAYOFF
1689					33,7167		40200	1	OCT	40200	REMOVE SCS GMP DISCRETE
1690	REF	2	LAST	615	33,7170	3	7221	1	CAF	3.5SEC33	CALL FOR DV MODE OFF IN 3.5 SECS
1691	REF	106	LAST	615	33,7171	0	2173	0	TC	WAITLIST	
1692	REF	4	LAST	615	33,7172		67177	1	CADR	DVMODOF2	
16921	REF	2	LAST	567	33,7173	3	3551	0	CAF	TWENTY5	
16922	REF	58	LAST	613	33,7174	0	2312	0	TC	NEWPHASE	
16923					33,7175		00003	1	OCT	3	
1693	REF	83	LAST	611	33,7176	0	2256	1	TC	TASKOVER	
1694	REF	13	LAST	615	33,7177	0	3405	0	DVMODOF2	TC	RELAYOFF
1695					33,7200		40002	1	OCT	40002	REMOVE SCS DV MODE DISCRETE
1696	REF	1			33,7201	3	7220	0	CAF	0.25S33	CALL FOR SCS ATT. CONTROL IN U/4 SEC
1697	REF	107	LAST	615	33,7202	0	2173	0	TC	WAITLIST	
1698	REF	1			33,7203		67205	1	CADR	SHUTASK	
1699	REF	84	LAST	615	33,7204	0	2256	1	TC	TASKOVER	
1700	REF	3	LAST	613	33,7205	3	2162	0	SHUTASK	CAF	PRI027
1701	REF	27	LAST	613	33,7206	0	2052	1	TC	NOVAC	ESTABLISH JOB TO RESUME SHUTDOWN PROCESS

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1702	REF	2 LAST 614	33,7207	67126 0	CADR	SHUTJOB1	
1703	REF	85 LAST 615	33,7210	0 2256 1	TC	TASKOVER	
1704			33,7211	2 0017 0	SETSEP	INHINT	
1705	REF	5 LAST 603	33,7212	3 2146 0	CAF	PRI012	
1706	REF	27 LAST 609	33,7213	0 2046 1	TC	FINDVAC	CM/SM SEPARATION ATTITUDE
1707	REF	1	33,7214	67224 1	CADR	SEPMANU	
1708	REF	10 LAST 609	33,7215	0 3373 0	SETATTC	TC	RELAYON
1709			33,7216	40001 1	OCT	40001	SET SCS ATT. CONTROL DISCRETE (C23)
1710	REF	102 LAST 615	33,7217	0 2124 1	TC	ENDOFJOB	
1711			33,7220	00031 0	0.25S33	DEC	25
1712			33,7221	00536 1	3.5SEC33	DEC	350
1713			33,7222	00764 1	5SEC33	DEC	500
1714			33,7223	01274 1	7SEC33	DEC	700

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1715	REF	35 LAST 611	33,7224	0 2362 1	SEPMANU	TC	NEWMODE	SET MAJOR MODE TO SEPARATION MANEUVER
1716			33,7225	00061 0		OCT	00061	
1717	REF	77 LAST 610	33,7226	0 4000 0		TC	INTPRET	
1718			33,7227	73175 0		UNIT	1	COMPUTE DESIRED S/C ORIENTATION FOR
1719			33,7230	75633 0		VXSC	COMP	CM/SM SEPARATION
1720	REF	13 LAST 610	33,7231	00774 0			VN	
1721	REF	1	33,7232	27257 1			COS60	
1722			33,7233	47575 0		NOLOD	1	
1723			33,7234	41753 0		VXV	UNIT	
1724	REF	15 LAST 610	33,7235	00766 0			RN	
1725	REF	4 LAST 604	33,7236	33417 0		STORE	YSCD	YSCD IS ALONG (RN*VN)
1726			33,7237	47573 0		NOLOD	3	
1727			33,7240	41753 0		VXV	UNIT	
1728			33,7241	75642 0		VXSC	VAD	
1729			33,7242	47176 1		COMP		
1730	REF	14 LAST 617	33,7243	00774 0			VN	
1731	REF	1	33,7244	27255 0			SIN60	
1732	REF	6 LAST 604	33,7245	33411 0		STORE	XSCD	XSCD IS 60 DEG ABOVE VELOCITY VECTOR
1733			33,7246	47575 0		NOLOD	1	
1734			33,7247	41753 0		VXV	UNIT	
1735	REF	5 LAST 617	33,7250	01417 1			YSCD	
1736	REF	4 LAST 604	33,7251	33425 1		STORE	ZSCD	
1737			33,7252	76776 0		ITC	0	BRANCH TO PERFORM MANEUVER TO THE
1738	REF	3 LAST 604	33,7253	26414 1			ATTIJOB1	SEPARATION ATTITUDE
1739			33,7254	33555 1	SIN60	2DEC	0.86603	
C1739			33,7255	01106 1				
1740			33,7256	20000 0	COS60	2DEC	0.5	
C1740			33,7257	00000 1				

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1741	REF	2	LAST	614	33,7260	3	6556	1	CDUXTASK	CAF	5SEC	ALLOW 5 SECS FOR CDUX RESOLVER SCALE CHANGE
1742	REF	108	LAST	615	33,7261	0	2173	0	TC	WAITLIST		
1743	REF	4	LAST	127	33,7262		67342	0	CADR	CM/SMTSK		
1744	REF	6	LAST	414	33,7263	3	4501	1		CAF	PRID20	
1745	REF	28	LAST	616	33,7264	0	2046	1	TC	FINDVAC		
1746	REF	2	LAST	127	33,7265		67274	1	CADR	CDUXJOB		
1749	REF	14	LAST	615	33,7266	0	3405	0	TC	RELAYOFF	SET SCS TO MONITOR MODE	
1750					33,7267		40007	1	OCT	40007		
1751	REF	2	LAST	558	33,7270	3	3534	0	CAF	TWELVE		
1752	REF	59	LAST	615	33,7271	0	2312	0	TC	NEWPHASE		
1753					33,7272		00003	1	OCT	00003		
1754	REF	86	LAST	616	33,7273	0	2256	1	TC	TASKOVER		
1755	REF	22	LAST	598	33,7274	4	0700	1	CDUXJOB	CS	THETAD	
1756					33,7275	4	0000	0	COM			
1757	REF	5	LAST	604	33,7276	5	1314	0	TS	CDUTEMP		
1758	REF	6	LAST	618	33,7277	1	1314	1	CCS	CDUTEMP	GET MAGNITUDE OF THETAD	
1759	REF	216	LAST	613	33,7300	6	4516	1	AD	ONE		
1760					33,7301	0	7303	0	TC	+2	AND SAVE IT	
1761	REF	217	LAST	618	33,7302	6	4516	1	AD	ONE		
1762	REF	469	LAST	593	33,7303	5	0115	1	TS	MPAC		
1763					33,7304	2	5777	1	EXTEND		FIND NEAREST INTEGER MULTIPLE OF 1/16	
1764	REF	1			33,7305	4	7353	1	MP	15/16TH		
1765	REF	27	LAST	602	33,7306	6	4504	1	AD	BIT11	AND SAVE IT	
1766	REF	1			33,7307	7	7354	0	MASK	HIGH4		
1767	REF	470	LAST	618	33,7310	3	0115	1	XCH	MPAC		
1768					33,7311	2	5777	1	EXTEND		SHIFT ORIGINAL THETAD RIGHT 4 PLACES	
1769	REF	28	LAST	618	33,7312	4	4504	0	MP	BIT11		
1770	REF	471	LAST	618	33,7313	6	0115	1	AD	MPAC	AND ADD INTEGER MULTIPLE	
1771					33,7314	2	0017	0	INHINT			
1772	REF	23	LAST	618	33,7315	5	0700	0	TS	THETAD		
1773	REF	7	LAST	618	33,7316	1	1314	1	CCS	CDUTEMP	ATTACH SIGN OF ORIGINAL THETAD MPAC HAS POSITIVE CDUBIAS	
1774	REF	472	LAST	618	33,7317	3	0115	1	XCH	MPAC		
1775					33,7320	0	7324	0	TC	+4		
1776	REF	24	LAST	618	33,7321	4	0700	1	CS	THETAD		
1777	REF	25	LAST	618	33,7322	5	0700	0	TS	THETAD		
1778	REF	473	LAST	618	33,7323	4	0115	0	CS	MPAC	COMPLEMENT INTEGER MULTIPLE SCALED AT 1/2 REV FOR ENTRY	
1779	REF	7	LAST	390	33,7324	5	1450	1	TS	K1ROLL		
1780					33,7325	2	0016	1	RELINT			

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1781	REF	24	LAST	615	33,7326	0	2276	0	TC	PHASCHNG	
1782					33,7327		01503	0	OCT	01503	
1783	REF	3	LAST	602	33,7330	0	3440	1	TC	FLAG2UP	SET CDUX FLAG
1784					33,7331		20000	0	OCT	20000	
1785	REF	166	LAST	614	33,7332	0	5654	0	TC	BANKCALL	CHANGE IMUCDU MODE TO RE-ENTRY
1786	REF	3	LAST	398	33,7333		30216	1	CADR	IMUREENT	
1787	REF	167	LAST	619	33,7334	0	5654	0	TC	BANKCALL	WAIT FOR COMPLETION OF MODE SWITCH
1788	REF	34	LAST	614	33,7335		30331	0	CADR	IMUSTALL	
1789	REF	7	LAST	614	33,7336	0	3066	1	TC	CURTAINS	CATCH-ALL FOR MODE SWITCH FAILURES
1790	REF	25	LAST	619	33,7337	0	2276	0	TC	PHASCHNG	
1791					33,7340		01603	0	OCT	01603	
1792	REF	103	LAST	616	33,7341	0	2124	1	TC	ENDOFJOB	
1793	REF	11	LAST	616	33,7342	0	3373	0	CM/SMTSK	RELAYON	SET SCS ENTRY MODE AND CM/SM SEPARATION
1794					33,7343		40014	0	OCT	40014	DISCRETES
1795	REF	2	LAST	565	33,7344	3	3537	0	CAF	FIFTN	
1796	REF	60	LAST	618	33,7345	0	2312	0	TC	NEWPHASE	
1797					33,7346		00003	1	OCT	00003	
1798	REF	3	LAST	618	33,7347	3	6556	1	CAF	5SEC	SET CALL TO START PRE-ENTRY ATTITUDE
1799	REF	109	LAST	618	33,7350	0	2173	0	TC	WAITLIST	MANEUVER IN 5 SECS
1800	REF	2	LAST	127	33,7351		67355	0	CADR	ENTATASK	
1801	REF	87	LAST	618	33,7352	0	2256	1	TC	TASKOVER	
1802					33,7353		36000	1	15/16TH	OCT	36000
1803					33,7354		74000	1	HIGH4	OCT	74000

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18034	REF	6 LAST 616	33,7355	3 2146 0	ENTATASK	CAF	PRI012	
18035	REF	29 LAST 618	33,7356	0 2046 1		TC	FINDVAC	
18036	REF	1	33,7357	67361 1		CADR	ENTAJOB	
18037	REF	88 LAST 619	33,7360	0 2256 1		TC	TASKOVER	
1804	REF	36 LAST 617	33,7361	0 2362 1	ENTAJOB	TC	NEWMODE	SET MAJOR MODE TO PRE-ENTRY MANEUVER
1805			33,7362	00062 0		OCT	00062	
1812	REF	214 LAST 605	33,7363	3 5501 0		CAF	ZERO	
18122	REF	1	33,7364	5 1472 1		TS	ROLLC	ROLLC = +0
1813	REF	2 LAST 620	33,7365	5 1473 0		TS	ROLLC + 1	
1814	REF	78 LAST 617	33,7366	0 4000 0		TC	INTPRET	
18159			33,7367	76776 0	GOGETUNB	ITC	0	COMPUTE DESIRED NAV BASE COORDS.
1816	REF	1	33,7370	21244 0			GETUNB	
1817			33,7371	76776 0		ITC	0	GET DESIRED S/C COORDS
1818	REF	2 LAST 604	33,7372	12213 1			CALCNBSC	
1819			33,7373	75176 0		VMOVE	0	TRANSFER DESIRED S/C UNIT VECTORS
1820	REF	4 LAST 604	33,7374	01367 1			XSC	
1821	REF	7 LAST 617	33,7375	33411 0		STORE	XSCD	
1822			33,7376	75176 0		VMOVE	0	
1823	REF	2 LAST 604	33,7377	01375 1			YSC	
1824	REF	6 LAST 617	33,7400	33417 0		STORE	YSCD	
1825			33,7401	75176 0		VMOVE	0	
1826	REF	2 LAST 604	33,7402	01403 1			ZSC	
1827	REF	5 LAST 617	33,7403	33425 1		STORE	ZSCD	
1828			33,7404	76776 0		ITC	0	BRANCH TO PERFORM MANEUVER TO PRE-ENTRY ATTITUDE
1829	REF	4 LAST 617	33,7405	26414 1			ATTIJOB1	
1830			33,7406	00007 0	ABORT33	OCT	00007	(OR OF ARRSST, TABT, ABRT)
18301				24,6357		BANK	24	
18302	REF	1	24,6357	3 6456 0	AVGON	CAF	PIPCAD24	CLEAR AND EXCHANGE PIPAS TO SAVE DELV ACCUMULATED DURING COAST PERIOD
18304	REF	3 LAST 579	24,6360	0 5750 0		TC	ISWCALL	
18316	REF	5 LAST 614	24,6361	0 3452 1		TC	FLAG2DWN	DISABLE FREE-FALL GYRO BIAS COMPENSATION (REMOVE DRIFT FLAG)
18318			24,6362	40000 0		OCT	40000	

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183182	REF	3	LAST 582	24,6363	0 3462 1	TC	STATEUP	SET BIAS FLAG
183184				24,6364	04000 0	OCT	04000	
1832	REF	9	LAST 593	24,6365	4 1465 0	CS	PIPTIME +1	
18322	REF	7	LAST 605	24,6366	5 0667 0	TS	TBASE5	
18324	REF	22	LAST 577	24,6367	3 4475 0	CAF	SIX	
18326	REF	61	LAST 619	24,6370	0 2312 0	TC	NEWPHASE	
18328				24,6371	00005 1	OCT	00005	
183296	REF	14	LAST 613	24,6372	3 4502 1	CAF	BIT13	IF TFF2 FLAG NOT SET, DO WHAT SERVICER
183298	REF	31	LAST 581	24,6373	7 0645 1	MASK	STATE	WOULD HAVE DONE WHEN TFF = TFFMIN
1833	REF	485	LAST 614	24,6374	1 0000 0	CCS	A	
183301	REF	1		24,6375	0 6433 0	TC	GO/ON	TFF2 FLAG SET
183302	REF	11	LAST 614	24,6376	0 3504 0	TC	SETBRNSW	SET BURN TO SPS2 BACK UP SETTING
183303				24,6377	00020 0	OCT	00020	
183304	REF	21	LAST 599	24,6400	0 3416 1	TC	FLAG1UP	SET INIT FLAG TO RE-MANEUVER TO SPS2 ATT
183305				24,6401	00400 0	OCT	00400	
183306	REF	218	LAST 618	24,6402	3 4516 1	CAF	ONE	
183307	REF	18	LAST 607	24,6403	5 1446 0	TS	VGCNTR	
183308	REF	1		24,6404	1 1724 0	CCS	REDOSPS1	TFF2 FLAG DOWN, SEE IF DO SPS1 AGAIN
183309	REF	1		24,6405	0 6414 0	TC	CONTINUE	NO
18331	REF	2	LAST 621	24,6406	0 6414 0	TC	CONTINUE	
183311				24,6407	0 6410 1	TC	+1	
183312	REF	12	LAST 621	24,6410	0 3504 0	TC	SETBRNSW	YES, SET BURN TO SPS1
183313				24,6411	00010 0	OCT	00010	
183314	REF	1		24,6412	3 6455 0	CAF	LOCSPS1	
183315	REF	6	LAST 607	24,6413	5 1470 0	TS	VRCADR	
183316	REF	2	LAST 584	24,6414	3 3556 1	CONTINUE CAF	THIRTY	
183317	REF	62	LAST 621	24,6415	0 2312 0	TC	NEWPHASE	
183318				24,6416	00004 0	OCT	00004	
183319	REF	28	LAST 614	24,6417	4 0036 0	CS	TIME1	
18332	REF	9	LAST 609	24,6420	5 0666 1	TS	TBASE4	
183321	REF	1		24,6421	3 6453 0	CAF	2SEC24	START READACCS IN 2 SECS
183322	REF	110	LAST 619	24,6422	0 2173 0	TC	WAITLIST	
183323	REF	4	LAST 580	24,6423	65152 1	CADR	READACCS	
183324	REF	1		24,6424	3 6454 1	CAF	90SEC24	SCHEDULE IGNITION IN 2 MINUTES
183325	REF	111	LAST 621	24,6425	0 2173 0	TC	WAITLIST	
183326	REF	3	LAST 584	24,6426	50463 0	CADR	PLUSX2	

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18333	REF	6	LAST	568	24,6427	3	2170	0	CAF	PRI035	
183332	REF	28	LAST	615	24,6430	0	2052	1	TC	NOVAC	
183334	REF	1			24,6431		50457	1	CADR	MODE32	
183339	REF	89	LAST	620	24,6432	0	2256	1	TC	TASKOVER	
18334	REF	24	LAST	579	24,6433	3	4473	0	CAF	THREE	
183341	REF	63	LAST	621	24,6434	0	2312	0	TC	NEWPHASE	
183342					24,6435		00002	0	OCT	00002	
183343	REF	219	LAST	621	24,6436	4	4516	0	CS	ONE	
183344	REF	64	LAST	622	24,6437	0	2312	0	TC	NEWPHASE	
18335					24,6440		00004	0	OCT	00004	
18336	REF	2	LAST	621	24,6441	3	6453	0	CAF	2SEC24	TURN ON READACCS IN 2 SECS
18338	REF	112	LAST	621	24,6442	0	2173	0	TC	WAITLIST	
1834	REF	5	LAST	621	24,6443		65152	1	CADR	READACCS	
18342	REF	7	LAST	622	24,6444	3	2170	0	CAF	PRI035	JOB TO CHANGE MM AND FINISH DRIFT COMP
18344	REF	29	LAST	622	24,6445	0	2052	1	TC	NOVAC	
18346	REF	2	LAST	132	24,6446		50477	0	CADR	MODE26	
183462	REF	7	LAST	620	24,6447	3	2146	0	CAF	PRI012	DO ATTITUDE MANEUVER FOR SPS2 BURN
183464	REF	30	LAST	620	24,6450	0	2046	1	TC	FINDVAC	
183466	REF	5	LAST	620	24,6451		66412	0	CADR	ATTIJOB1 -1	
18348	REF	90	LAST	622	24,6452	0	2256	1	TC	TASKOVER	
18349					24,6453		00310	0	2SEC24	DEC	200
183495					24,6454		21450	0	90SEC24	DEC	9000
183497	REF	2	LAST	564	24,6455		52454	0	LOCSPS1	CADR	501SPS1
1835	REF	3	LAST	580	24,6456		61313	1	PIPCAD24	CADR	PIPASR
183502	REF	37	LAST	620	24,6457	0	2362	1	MODE32	TC	NEWMODE
183504					24,6460		00032	0	OCT	00032	SET MAJOR MODE TO PRE-SPS2
183506	REF	27	LAST	582	24,6461	0	5720	1	TC	POSTJUMP	FINISH DRIFT COMPUTATIONS
183508	REF	3	LAST	622	24,6462		50501	0	CADR	MODE26 +2	
18351	REF	1			24,6463	3	6476	1	PLUSX2	CAF	18SEC24
183512	REF	113	LAST	622	24,6464	0	2173	0	TC	WAITLIST	
18352	REF	7	LAST	573	24,6465		64511	0	CADR	GIMPOWON	
183521	REF	4	LAST	611	24,6466	0	3474	0	TC	STATEDWN	REMOVE BIAS FLAG
183522					24,6467		04000	0	OCT	04000	

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183523 REF 12 LAST 619	24,6470 0 3373 0	TC	RELAYON	SET SCS +X TRANS DISCRETE (C27)
183524	24,6471 40020 1	OCT	40020	
183525 REF 1	24,6472 3 3541 1	CAF	SEVENTN	
183526 REF 65 LAST 622	24,6473 0 2312 0	TC	NEWPHASE	
183527	24,6474 00004 0	OCT	4	
183528 REF 91 LAST 622	24,6475 0 2256 1	TC	TASKOVER	
183529	24,6476 03410 1 18SEC24	DEC	1800	
18353 REF 38 LAST 622	24,6477 0 2362 1 MODE26	TC	NEWMODE	SET MAJOR MODE TO HOLD SPS2 ATTITUDE
183531	24,6500 00026 0	OCT	00026	UNTIL TFFMIN
183532 REF 22 LAST 621	24,6501 0 3416 1	TC	FLAG1UP	SET INTP FLAG
183533	24,6502 01000 0	OCT	01000	
183534 REF 10 LAST 621	24,6503 4 1465 0	CS	PIPTIME +1	CALL LASTBIAS ROUTINE
183535	24,6504 4 0000 0	COM		
183536 REF 474 LAST 618	24,6505 5 0115 1	TS	MPAC	
183537 REF 1	24,6506 3 6511 1	CAF	COMP2SEC	
183538 REF 28 LAST 622	24,6507 0 5720 1	TC	POSTJUMP	
183539 REF 1	24,6510 31343 1	CADR	LASTBIAS	
18354	24,6511 31000 0 COMP2SEC	DEC	200 B +6	

6356
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18355		3373		BANK	1
18356	REF 301 LAST 552	3373	2 0001 1	RELAYON	INDEX Q
1836		3374	4 0000 0		CS 0
1837		3375	2 0017 0		INHINT
1838	REF 95 LAST 614	3376	7 0725 0		MASK DSPTAB +13D
1839	REF 302 LAST 624	3377	2 0001 1		INDEX Q
1840		3400	6 0000 1		AD 0
1841	REF 96 LAST 624	3401	5 0725 1		TS DSPTAB +13D
1842		3402	2 0016 1		RELINT
1843	REF 303 LAST 624	3403	2 0001 1		INDEX Q
1844		3404	0 0001 0		TC 1
1845	REF 304 LAST 624	3405	2 0001 1	RELAYOFF	INDEX Q
1846		3406	4 0000 0		CS 0
1847		3407	2 0017 0		INHINT
1848	REF 97 LAST 624	3410	7 0725 0		MASK DSPTAB +13D
1849	REF 29 LAST 605	3411	6 4500 0		AD BIT15
1850	REF 98 LAST 624	3412	5 0725 1		TS DSPTAB +13D
1851		3413	2 0016 1		RELINT
1852	REF 305 LAST 624	3414	2 0001 1		INDEX Q
1853		3415	0 0001 0		TC 1
1854	REF 306 LAST 624	3416	2 0001 1	FLAG1UP	INDEX Q
1855		3417	4 0000 0		CS 0
1856		3420	2 0017 0		INHINT
1857	REF 27 LAST 614	3421	7 0646 1		MASK FLAGWRD1
1858	REF 307 LAST 624	3422	2 0001 1		INDEX Q
1859		3423	6 0000 1		AD 0
1860	REF 28 LAST 624	3424	5 0646 0		TS FLAGWRD1
1861		3425	2 0016 1		RELINT
1862	REF 308 LAST 624	3426	2 0001 1		INDEX Q
1863		3427	0 0001 0		TC 1
1864	REF 309 LAST 624	3430	2 0001 1	FLAG1DWN	INDEX Q
1865		3431	4 0000 0		CS 0
1866		3432	2 0017 0		INHINT
1867	REF 29 LAST 624	3433	7 0646 1		MASK FLAGWRD1
1868	REF 30 LAST 624	3434	5 0646 0		TS FLAGWRD1
1869		3435	2 0016 1		RELINT
1870	REF 310 LAST 624	3436	2 0001 1		INDEX Q
1871		3437	0 0001 0		TC 1
1872	REF 311 LAST 624	3440	2 0001 1	FLAG2UP	INDEX Q
1873		3441	4 0000 0		CS 0
1874		3442	2 0017 0		INHINT
1875	REF 22 LAST 613	3443	7 0647 0		MASK FLAGWRD2
1876	REF 312 LAST 624	3444	2 0001 1		INDEX Q
1877		3445	6 0000 1		AD 0
1878	REF 23 LAST 624	3446	5 0647 1		TS FLAGWRD2

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1879		3447	2 0016 1	RELINT	
1880	REF 313 LAST 624	3450	2 0001 1	INDEX	Q
1881		3451	0 0001 0	TC	1
1882	REF 314 LAST 625	3452	2 0001 1	FLAG2DWN INDEX	Q
1883		3453	4 0000 0	CS	0
1884		3454	2 0017 0	INHINT	
1885	REF 24 LAST 624	3455	7 0647 0	MASK	FLAGWRD2
1886	REF 25 LAST 625	3456	5 0647 1	TS	FLAGWRD2
1887		3457	2 0016 1	RELINT	
1888	REF 315 LAST 625	3460	2 0001 1	INDEX	Q
1889		3461	0 0001 0	TC	1
188902	REF 316 LAST 625	3462	2 0001 1	STATEUP INDEX	Q
188904		3463	4 0000 0	CS	0
188906		3464	2 0017 0	INHINT	
188908	REF 32 LAST 621	3465	7 0645 1	MASK	STATE
18891	REF 317 LAST 625	3466	2 0001 1	INDEX	Q
188912		3467	6 0000 1	AD	0
188914	REF 33 LAST 625	3470	5 0645 0	TS	STATE
188916		3471	2 0016 1	RELINT	
188918	REF 318 LAST 625	3472	2 0001 1	INDEX	Q
18892		3473	0 0001 0	TC	1
188922	REF 319 LAST 625	3474	2 0001 1	STATEDWN INDEX	Q
188924		3475	4 0000 0	CS	0
188926		3476	2 0017 0	INHINT	
188928	REF 34 LAST 625	3477	7 0645 1	MASK	STATE
18893	REF 35 LAST 625	3500	5 0645 0	TS	STATE
188932		3501	2 0016 1	RELINT	
188934	REF 320 LAST 625	3502	2 0001 1	INDEX	Q
188936		3503	0 0001 0	TC	1
1890	REF 1	3504	4 3515 1	SETBRNSW CS	BURNMASK
1891		3505	2 0017 0	INHINT	
1892	REF 26 LAST 625	3506	7 0647 0	MASK	FLAGWRD2
1893	REF 321 LAST 625	3507	2 0001 1	INDEX	Q
1894		3510	6 0000 1	AD	0
1895	REF 27 LAST 625	3511	5 0647 1	TS	FLAGWRD2
1896		3512	2 0016 1	RELINT	
1897	REF 322 LAST 625	3513	2 0001 1	INDEX	Q
1898		3514	0 0001 0	TC	1
1899		3515	00177 0	BURNMASK OCT	00177
1900		3516	2 0017 0	SETHETAD INHINT	
1901	REF 19 LAST 541	3517	4 0047 0	CS	CDUX
1902		3520	4 0000 0	COM	

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1903	REF	26	LAST	618	3521	5	0700	0	TS	THETAD
1904	REF	6	LAST	401	3522	4	0050	0	CS	CDUY
1905					3523	4	0000	0	COM	
1906	REF	27	LAST	626	3524	5	0701	1	TS	THETAD +1
1907	REF	6	LAST	401	3525	4	0051	1	CS	CDUZ
1908					3526	4	0000	0	COM	
1909	REF	28	LAST	626	3527	5	0702	1	TS	THETAD +2
1910					3530	2	0016	1	RELINT	
1911	REF	323	LAST	625	3531	0	0001	0	TC	Q

1912					3532	00011	1	NINE	DEC	9
1913					3533	00013	0	ELEVEN	OCT	00013
19132	REF	7	LAST	585		3533		11DEC	EQUALS	ELEVEN
1914					3534	00014	1	TWELVE	OCT	00014
1915					3535	00015	0	THIRTN	OCT	00015
19152	REF	1				3535		THIRTEEN	EQUALS	THIRTN
1916					3536	00016	0	FOURTN	OCT	00016
1917					3537	00017	1	FIFTN	OCT	00017
1918					3540	00020	0	SIXTN	OCT	00020
1919					3541	00021	1	SEVENTN	OCT	00021
1920					3542	00022	1	EIGHTN	OCT	00022
1921					3543	00023	0	NINETEEN	DEC	19
1922					3544	00024	1	TWENTY0	OCT	00024
19222	REF	3	LAST	567		3544		TWENTY	EQUALS	TWENTY0
1923					3545	00025	0	TWENTY1	OCT	00025
1924					3546	00026	0	TWENTY2	OCT	00026
1925					3547	00027	1	TWENTY3	OCT	00027
1926					3550	00030	1	TWENTY4	OCT	00030
1927					3551	00031	0	TWENTY5	OCT	00031
1928					3552	00032	0	TWENTY6	DEC	26
1929					3553	00033	1	TWENTY7	DEC	27
19292					3554	00034	0	TWENTY8	DEC	28
19294					3555	00035	1	TWENTY9	DEC	29
1930					3556	00036	1	THIRTY	DEC	30
1931	REF	3	LAST	621		3556		30DEC	EQUALS	THIRTY
19315					3557	00037	0	THIRTY1	DEC	31
19318					3560	00040	0	THIRTY2	DEC	32
1932					3561	00050	1	FORTY	DEC	40
1933	REF	1				3561		40DEC	EQUALS	FORTY
1934					3562	00062	0	FIFTY	DEC	50
1935	REF	1				3562		50DEC	EQUALS	FIFTY
1936					3563	00074	1	SIXTY	DEC	60
1937	REF	1				3563		60DEC	EQUALS	SIXTY
1940					3564	00144	0	100DEC	DEC	100
1945					3565	00310	0	200DEC	DEC	200

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1950		3566	00454 1	300DEC	DEC	300
1955		3567	00620 0	400DEC	DEC	400
1960		3570	00764 1	500DEC	DEC	500
1965		3571	01130 1	600DEC	DEC	600
1966	REF 1		3571	SIXHNRD	EQUALS	600DEC
1970		3572	01750 1	1000DEC	DEC	1000
1975		3573	03720 1	2000DEC	DEC	2000

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R0001 THIS ROUTINE ENTERED AT CDUTRIG READS PRESENT CDU REGISTERS AND STORES THEM SCALED AT ONE REVOLUTION AS A DP
 R0003 VECTOR IN CDUTEMP. IT COMPUTES SIN,COS(CDUX,Y,Z) AND STORES THEM IN SINCDU,+2,+4 AND COSCDU,+2,+4 RESPECTIVELY
 R0005 SCALED AT 2(+1). WHEN ENTERED AT THETRIG THE ROUTINE PERFORMS THE SAME FUNCTION WITH THE DESIRED CDU ANGLE REG-
 R0007 ISTERS THETAD,+1,+2. ENTER WITH C(X1) =6 FOR X,Y,Z (=4 FOR Y,Z ONLY)

0008				25,6000	25,6000		SETLOC	52000	
0009				25,6000	77576 0	CDUTRIG	EXIT	0	
0010				25,6001	2 0017 0		INHINT		
0011	REF	20	LAST	625	25,6002	4 0047 0	CS	CDUX	
0012	REF	8	LAST	618	25,6003	5 1314 0	TS	CDUTEMP	
0013	REF	7	LAST	626	25,6004	4 0050 0	CS	CDUY	
0014	REF	9	LAST	628	25,6005	5 1316 1	TS	CDUTEMP +2	
0015	REF	7	LAST	626	25,6006	4 0051 1	CS	CDUZ	
0016	REF	10	LAST	628	25,6007	5 1320 1	TS	CDUTEMP +4	
0017					25,6010	2 0016 1	RELINT		
0018	REF	1			25,6011	0 6023 0	TC	JUMP3	
0019					25,6012	77576 0	THETRIG	EXIT	0
0020					25,6013	2 0017 0	INHINT		
0021	REF	29	LAST	626	25,6014	4 0700 1	CS	THETAD	
0022	REF	11	LAST	628	25,6015	5 1314 0	TS	CDUTEMP	
0023	REF	30	LAST	628	25,6016	4 0701 0	CS	THETAD +1	
0024	REF	12	LAST	628	25,6017	5 1316 1	TS	CDUTEMP +2	
0025	REF	31	LAST	628	25,6020	4 0702 0	CS	THETAD +2	
0026	REF	13	LAST	628	25,6021	5 1320 1	TS	CDUTEMP +4	
0027					25,6022	2 0016 1	RELINT		
0028	REF	28	LAST	625	25,6023	4 0647 0	JUMP3	CS	FLAGWRD2
0029	REF	17	LAST	571	25,6024	7 4501 0	MASK	BIT14	TEST IF CDUX FLAG SET
0030	REF	486	LAST	621	25,6025	1 0000 0	CCS	A	(CDUXFLAG MASK)
0031	REF	1			25,6026	0 6037 0	TC	JUMP8	IT IS NOT
0032	REF	7	LAST	173	25,6027	3 4302 1	CAF	LOW11	
0033	REF	14	LAST	628	25,6030	7 1314 1	MASK	CDUTEMP	
0034	REF	30	LAST	547	25,6031	5 0022 1	TS	CYL	
0035	REF	31	LAST	628	25,6032	4 0022 0	CS	CYL	
0036	REF	32	LAST	628	25,6033	4 0022 0	CS	CYL	
0037	REF	33	LAST	628	25,6034	4 0022 0	CS	CYL	
0038	REF	34	LAST	628	25,6035	3 0022 1	XCH	CYL	
0039	REF	15	LAST	628	25,6036	3 1314 0	XCH	CDUTEMP	
0040	REF	79	LAST	620	25,6037	0 4000 0	JUMP8	TC	INTPRET
0041					25,6040	55576 0	SINCOS	AST,1	0
0042					25,6041	00003 1			2
0043					25,6042	42175 1	REPEAT1	SMOVE*	1

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0044			25,6043	47171 0	COMP	RTB	
0045	REF	16 LAST 628	25,6044	02645 1		CDUTEMP +6,1	
0046	REF	6 LAST 470	25,6045	20304 1		CDULOGIC	
0047	REF	17 LAST 629	25,6046	36645 0	STORE	CDUTEMP +6,1	
0048			25,6047	47575 0	NOLOD	1	
0049			25,6050	57176 0	SIN		
0050	REF	2 LAST 561	25,6051	36675 0	STORE	SINCDU +6,1	
0051			25,6052	54176 0	COS*	0	
0052	REF	18 LAST 629	25,6053	02645 1		CDUTEMP +6,1	
0053	REF	1	25,6054	36711 0	STORE	COSCDU +6,1	
0054			25,6055	51574 0	TIX,1	2	
0055			25,6056	65116 1	ABS	TSLT	TEST IF COS(THETAD+2) LESS THAN COS(60)
00552			25,6057	71775 1	BOV	EXIT	
00554	REF	1	25,6060	12043 0		REPEAT1	
00556	REF	2 LAST 629	25,6061	01343 1		COSCDU +4	
00558			25,6062	00003 1		2	
0056	REF	1	25,6063	12070 0		NOGIMLOC	IT IS NOT. NO NEED TO ALARM
00562	REF	21 LAST 593	25,6064	0 3007 0	TC	ALARM	
00564			25,6065	01407 0	OCT	01407	
00566	REF	80 LAST 628	25,6066	0 4000 0	TC	INTPRET	
00568			25,6067	40576 1	NOGIMLOC	ITCQ	0
0057			25,6070	77760 0	HIGH11	OCT	77760

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R0058 THIS ROUTINE COMPUTES DESIRED CDU(GIMBAL) ANGLES GIVEN THE DESIRED NAV. BASE AXES IN XNB AS THREE HALF UNIT
 R0060 VECTORS IN STABLE MEMBER COORDINATES. THE DESIRED CDUX,Y,Z APPEAR IN MPAC, +1, +2 AT THE SAME SCALING AS CDUX,
 R0062 Y,Z WITH THE INTERPRETER SET TO THE TP MODE

0063			25,6071	45575 1	CALCCDU	ITA	1	
0064			25,6072	76776 0		ITC		
0065	REF	15 LAST 466	25,6073	00051 0			S1	
0066	REF	5 LAST 442	25,6074	04353 0			CALCGTA	
0067			25,6075	43575 1		TEST	1	IF CDUXFLAG SET, RESCALE OGC TO 8 REVS
0068			25,6076	76576 1		RTB		
0069	REF	3 LAST 601	25,6077	00043 0			CDUXFLAG	
0070	REF	1	25,6100	12103 0			GETOGC	
0071	REF	1	25,6101	20721 1			CDUXFIX	
0072			25,6102	75175 0	GETOGC	VMOVE	1	
0073			25,6103	76421 1		RTB	ITCI	
0074	REF	30 LAST 546	25,6104	01521 0			OGC	
0075	REF	3 LAST 469	25,6105	20624 0			V1ST02S	
0076	REF	16 LAST 630	25,6106	00051 0			S1	

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R0077 THIS ROUTINE COMPUTES THE MATRIX WHICH TRANSFORMS FROM STABLE MEMBER COORDINATES TO NAV. BASE COORDINATES. IT
 R0079 REQUIRES SIN,COS(CDUX,Y,Z) IN SINCDU, +2, +4 AND COSCDU, +2, +4 RESPECTIVELY SCALED TO ONE HALF. THE MATRIX IS
 R0081 STORED IN X,Y,ZNB AS THREE HALF UNIT ROW VECTORS

0082			25,6107	64775 0	CALCSMNB	DMP	1
0083			25,6110	47176 1		COMP	
0084	REF	3 LAST 629	25,6111	01333 0			SINCDU +2
0085	REF	3 LAST 629	25,6112	01343 1			COSCDU +4
0086			25,6113	56776 1		TSRT	0
0087	REF	4 LAST 631	25,6114	01335 0			SINCDU +4
0088			25,6115	00002 0			1
0089			25,6116	64775 0		DMP	1
0090			25,6117	41022 1		VDEF	VSLT
0091	REF	4 LAST 631	25,6120	01341 0			COSCDU +2
0092	REF	5 LAST 631	25,6121	01343 1			COSCDU +4
0093			25,6122	00002 0			1
0094	REF	7 LAST 596	25,6123	33477 0		STORE	XNB
0095			25,6124	64775 0		DMP	1
0096			25,6125	63776 1		TSLT	
0097	REF	5 LAST 631	25,6126	01331 1			SINCDU
0098	REF	6 LAST 631	25,6127	01335 0			SINCDU +4
0099			25,6130	00002 0			1
0100			25,6131	32033 0		STORE	26D
0101			25,6132	47575 0		NOLDD	1
0102			25,6133	64776 0		DMP	
0103	REF	7 LAST 631	25,6134	01333 0			SINCDU +2
0104			25,6135	64775 0		DMP	1
0105			25,6136	66776 1		DSJ	
0106	REF	6 LAST 631	25,6137	01337 1			COSCDU
0107	REF	7 LAST 631	25,6140	01341 0			COSCDU +2
0108			25,6141	64775 0		DMP	1
0109			25,6142	47176 1		COMP	
0110	REF	8 LAST 631	25,6143	01331 1			SINCDU
0111	REF	8 LAST 631	25,6144	01343 1			COSCDU +4
0112			25,6145	64776 0		DMP	0
0113	REF	9 LAST 631	25,6146	01337 1			COSCDU
0114	REF	9 LAST 631	25,6147	01333 0			SINCDU +2
0115			25,6150	64774 1		DMP	2
0116			25,6151	70603 0		DAD	VDEF
0117			25,6152	44776 1		VSLT	

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0118	REF	10 LAST 631	25,6153	01341 0		COSCDU +2
0119			25,6154	00033 1		26D
0120			25,6155	77777 0		-
0121			25,6156	00002 0		1
0122	REF	6 LAST 596	25,6157	33513 0	STORE	ZNB
0123			25,6160	47575 0	NOLOD	1
0124			25,6161	41622 1	VXV	VSLT
0125	REF	8 LAST 631	25,6162	01477 1		XNB
0126			25,6163	00002 0		1
0127	REF	5 LAST 596	25,6164	33505 1	STORE	YNB
0128			25,6165	40576 1	ITCQ	0

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R0129 ROUTINE CALCSCNB TRANSFORMS A MATRIX OF HALF UNIT VECTORS ALONG SPACECRAFT AXES, XSCD, INTO A MATRIX OF HALF
 R0131 UNIT VECTORS ALONG NAV. BASE AXES, XNB. ROUTINE CALCNBSC DOES THE INVERSE, STORING THE MATRIX OF UNIT VECTORS
 R0133 ALONG SPACECRAFT AXES IN XSC

0134			25,6166	75776 0	CALCSCNB VXSC	0
0135	REF	8 LAST 620	25,6167	01411 1		XSCD
0136	REF	2 LAST 596	25,6170	12241 0		COS33
0137			25,6171	75775 0	VXSC	1
0138			25,6172	46776 0	BVSU	
0139	REF	6 LAST 620	25,6173	01425 0		ZSCD
0140	REF	2 LAST 596	25,6174	12237 1		SIN33
0141	REF	9 LAST 632	25,6175	33477 0	STORE	XNB
0142			25,6176	75176 0	VMOVE	0
0143	REF	7 LAST 620	25,6177	01417 1		YSCD
0144	REF	6 LAST 632	25,6200	33505 1	STORE	YNB
0145			25,6201	75776 0	VXSC	0
0146	REF	9 LAST 633	25,6202	01411 1		XSCD
0147	REF	3 LAST 633	25,6203	12237 1		SIN33
0148			25,6204	75775 0	VXSC	1
0149			25,6205	50776 1	VAD	
0150	REF	7 LAST 633	25,6206	01425 0		ZSCD
0151	REF	3 LAST 633	25,6207	12241 0		COS33
0152	REF	7 LAST 632	25,6210	33513 0	STORE	ZNB
0153			25,6211	40576 1	ITCQ	0

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0154				25,6212	75776 0	CALCNBSC VXSC	0
0155	REF	10	LAST 633	25,6213	01477 1		XNB
0156	REF	4	LAST 633	25,6214	12241 0		COS33
0157				25,6215	75775 0	VXSC	1
0158				25,6216	50776 1	VAD	
0159	REF	8	LAST 633	25,6217	01513 1		ZNB
0160	REF	4	LAST 633	25,6220	12237 1		SIN33
0161	REF	5	LAST 620	25,6221	33367 0	STORE	XSC
0162				25,6222	75176 0	VMOVE	0
0163	REF	7	LAST 633	25,6223	01505 0		YNB
0164	REF	3	LAST 620	25,6224	33375 0	STORE	YSC
0165				25,6225	75776 0	VXSC	0
0166	REF	11	LAST 634	25,6226	01477 1		XNB
0167	REF	5	LAST 634	25,6227	12237 1		SIN33
0168				25,6230	75775 0	VXSC	1
0169				25,6231	74776 1	VSJ	
0170	REF	9	LAST 634	25,6232	01513 1		ZNB
0171	REF	5	LAST 634	25,6233	12241 0		COS33
0172	REF	3	LAST 620	25,6234	33403 0	STORE	ZSC
0173				25,6235	40576 1	ITCQ	0
0174				25,6236	21333 1	SIN33 2DEC	0.544639000
C0174				25,6237	13542 0		
0175				25,6240	32654 1	COS33 2DEC	0.838670600
C0175				25,6241	30735 0		

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R0176 THIS ROUTINE COMPUTES INCREMENTAL CHANGES IN CDU(GIMBAL) ANGLES FROM INCREMENTAL ANGULAR CHANGES ABOUT SM AXES.
 R0178 IT REQUIRES SM INCREMENTS AS A DP VECTOR IN VAC SCALED AT ONE REVOLUTION, SIN,COS(CDUX,Y,Z) IN SINCDU, +2, +4
 R0180 AND COSCDU, +2, +4 RESPECTIVELY SCALED TO ONE HALF. CDU INCREMENTS APPEAR IN THE VAC SCALED AT ONE REV.

0182		25,6242	64776 0	SMCDURES DMP	0
0183		25,6243	00041 1		32D
0184	REF 11 LAST 632	25,6244	01341 0		COSCDU +2
0185		25,6245	64775 0	DMP	1
0186		25,6246	65712 0	BDSU	DDV
0187		25,6247	00045 0		36D
0188	REF 10 LAST 631	25,6250	01333 0		SINCDU +2
0189		25,6251	77777 0		-
0190	REF 12 LAST 635	25,6252	01343 1		COSCDU +4
0191		25,6253	32027 0	STORE	22D
0192		25,6254	47574 1	NOLOD	2
0193		25,6255	64716 0	DMP	TSLT
0194		25,6256	65776 1	BDSU	
0195	REF 11 LAST 635	25,6257	01335 0		SINCDU +4
0196		25,6260	00002 0		1
0197		25,6261	00043 0		34D
0198		25,6262	32031 1	STORE	24D
0199		25,6263	64776 0	DMP	0
0200		25,6264	00041 1		32D
0201	REF 12 LAST 635	25,6265	01333 0		SINCDU +2
0202		25,6266	64775 0	DMP	1
0203		25,6267	70716 0	DAD	TSLT
0204		25,6270	00045 0		36D
0205	REF 13 LAST 635	25,6271	01341 0		COSCDU +2
0206		25,6272	77777 0		-
0207		25,6273	00002 0		1
0208		25,6274	32033 0	STORE	26D
02085		25,6275	75175 0	VMOVE	1
0209		25,6276	40576 1	ITCQ	
02095		25,6277	00027 1		22D

L POWERED FLIGHT SUBROUTINES

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R0210 THIS ROUTINE COMPUTES INCREMENTAL ANGULAR CHANGES ABOUT NAV. BASE AXES FROM INCREMENTAL CDU ANGLE CHANGES. IT
 R0212 REQUIRES THE CDU INCREMENTS AS A DP VECTOR IN DCDU, +2, +4, SCALED AT ONE REVOLUTION. SIN, COS(CDUX, Y, Z) MUST BE
 R0214 IN SINCDU, +2, +4, AND COSCDU, +2, +4 RESPECTIVELY SCALED AT ONE HALF. INCREMENTAL NAV. BASE ANGLES APPEAR IN
 R0216 DNB, +2, +4 SCALED AT ONE REVOLUTION

0217			25,6300	64775 0	CDUNBRES	DMP	1
0218			25,6301	63776 1		TSLT	
0219	REF	14 LAST 635	25,6302	01343 1			COSCDU +4
0220	REF	1	25,6303	01347 0			DCDU +2
0221			25,6304	00002 0			1
0222			25,6305	32033 0		STORE	26D
0223			25,6306	47575 0		NOLOD	1
0224			25,6307	64776 0		DMP	
0225	REF	13 LAST 635	25,6310	01331 1			SINCDU
0226			25,6311	64775 0		DMP	1
0227			25,6312	66776 1		DSU	
0228	REF	15 LAST 636	25,6313	01337 1			COSCDU
0229	REF	2 LAST 636	25,6314	01351 1			DCDU +4
0230			25,6315	64776 0		DMP	0
0231			25,6316	00033 1			26D
0232	REF	16 LAST 636	25,6317	01337 1			COSCDU
0233			25,6320	64775 0		DMP	1
0234			25,6321	70776 0		DAD	
0235	REF	14 LAST 636	25,6322	01331 1			SINCDU
0236	REF	3 LAST 636	25,6323	01351 1			DCDU +4
0237			25,6324	56776 1		TSRT	0
0238	REF	4 LAST 636	25,6325	01345 1			DCDU
0239			25,6326	00002 0			1
0240			25,6327	64774 1		DMP	2
0241			25,6330	70603 0		DAD	VDEF
0242			25,6331	44776 1		VSLT	
0243	REF	15 LAST 636	25,6332	01335 0			SINCDU +4
0244	REF	5 LAST 636	25,6333	01347 0			DCDU +2
0245			25,6334	77777 0			-
0246			25,6335	00002 0			1
0247	REF	1	25,6336	33353 1		STORE	DNB
0248			25,6337	40576 1		ITCQ	0

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R0249 THIS ROUTINE COMPUTES INCREMENTAL CHANGES TO CDU ANGLES FROM INCREMENTAL ANGULAR CHANGES ABOUT NAV. BASE AXES.
 R0251 IT REQUIRES THE INCREMENTAL NAV. BASE ANGLES AS A DP VECTOR IN VAC SCALED AT 1 REVOLUTION. SIN,COS(CDUX,Y,Z)
 R0253 MUST BE IN SINCDU, COSCDU RESPECTIVELY SCALED AT 2(+1). IT LEAVES CDU INCREMENTS AS A DP VECTOR IN DCDU AT THE
 R0255 SAME SCALING

0256		25,6340	64776 0	NBCDURES DMP	0
0257		25,6341	00045 0		36D
0258	REF 16 LAST 636	25,6342	01331 1		SINCDU
0259		25,6343	64775 0	DMP	1
0260		25,6344	66712 0	DSJ	DDV
0261		25,6345	00043 0		34D
0262	REF 17 LAST 636	25,6346	01337 1		COSCDU
0263		25,6347	77777 0		-
0264	REF 18 LAST 637	25,6350	01343 1		COSCDU +4
0265	REF 6 LAST 636	25,6351	33347 1	STORE	DCDU +2
0266		25,6352	47574 1	NOLDD	2
0267		25,6353	64633 0	DMP	COMP
0268		25,6354	63742 0	TSLT	DAD
0269	REF 17 LAST 637	25,6355	01335 0		SINCDU +4
0270		25,6356	00002 0		1
0271		25,6357	00041 1		32D
0272	REF 7 LAST 637	25,6360	33345 0	STORE	DCDU
0273		25,6361	64776 0	DMP	0
0274		25,6362	00043 0		34D
0275	REF 18 LAST 637	25,6363	01331 1		SINCDU
0276		25,6364	64775 0	DMP	1
0277		25,6365	70716 0	DAD	TSLT
0278		25,6366	00045 0		36D
0279	REF 19 LAST 637	25,6367	01337 1		COSCDU
0280		25,6370	77777 0		-
0281		25,6371	00002 0		1
0282	REF 8 LAST 637	25,6372	33351 0	STORE	DCDU +4
0283		25,6373	40576 1	ITCQ	0

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R0284 THIS ROUTINE RESOLVES THE SMALL ANGLE VECTOR STORED AS SM COMPONENTS IN VAC, SCALED TO ONE REVOLUTION, INTO
 R0286 COMMANDED CDU ANGLE CHANGES VAC, +2,+4, SCALED TO ONE REVOLUTION, THROUGH THE DESIRED CDU ANGLES DEFINED BY
 R0288 THETAD,+1,+2. THE ROUTINE THEN INCREMENTS THETAD,+1,+2 IN 2S COMP. AT CDUX,Y,Z SCALING

0290			25,6374	45575 1	CDUDRIVE ITA	1	
0291			25,6375	75572 0	AXT,1	ITC	
0292	REF	21 LAST 595	25,6376	00052 0		S2	
0293			25,6377	00005 1		4	
0294	REF	2 LAST 596	25,6400	12013 0		THETRIG	
0295			25,6401	76776 0	CDUDRVE2 ITC	0	
0296	REF	1	25,6402	12243 1		SMCDURES	
0297			25,6403	43575 1	TEST	1	TEST IF CDUX FLAG SET
0298			25,6404	56776 1	TSRT		
0299	REF	4 LAST 630	25,6405	00043 0		CDUXFLAG	
0300	REF	1	25,6406	12413 1		CDUDRVE1	
0301			25,6407	00041 1		32D	
0302			25,6410	00005 1		4	
0303			25,6411	32041 0	STORE	32D	
0304			25,6412	47574 1	CDUDRVE1 NOLOD	2	RESCALE DCDU AND BRANCH TO
0305			25,6413	44771 0	VSLT	RTB	INCREMENT THETAD
0306			25,6414	44576 0	ITCI		
0307			25,6415	00002 0		1	
0308	REF	2 LAST 578	25,6416	20416 0		INCRCDUS	
0309	REF	22 LAST 638	25,6417	00052 0		S2	

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R0367 THE FOLLOWING SERIES OF CLOSED SUBROUTINES COMPUTE THE REQUIRED VELOCITY VR, SCALED TO $2(+8)$ M/CS, VELOCITY-TO-BE
 R0369 -GAINED VG, SCALED TO $2(+7)$ M/CS, AND THE MODIFIED B-VECTOR CBDT, SCALED TO $2(+4)$ M/CS, FOR THE DIFFERENT PHASES
 R0371 OF POWERED FLIGHT.

0372			25,6420	75176 0	CALCVGB	VMOVE	0	
0373	REF	3 LAST 586	25,6421	01417 1			VR	
0374	REF	2 LAST 590	25,6422	33411 0		STORE	CBDT	(CBDT USED HERE AS TEMP. STORAGE FOR VR)
0375			25,6423	45575 1		ITA	1	
0376			25,6424	73421 1		LXA,1	ITCI	
0377	REF	23 LAST 638	25,6425	00052 0			S2	
0378	REF	1	25,6426	01042 0			XSHIFT	
0379	REF	7 LAST 621	25,6427	01471 1			VRCADR	
0380			25,6430	47575 0	CALCCBDT	NOLDD	1	
0381			25,6431	74622 1		VSU	VSLT	
0382	REF	3 LAST 639	25,6432	01411 1			CBDT	OLD VR
0383			25,6433	00005 1			4	D(VR) TO PD SCALED AT $2(+4)$ M/CS
0384			25,6434	75775 0		VXSC	1	
0385			25,6435	50766 0		VAD	VXSC	
0386	REF	1	25,6436	01010 1			GRAVITY	
0387	REF	9 LAST 607	25,6437	01030 0			DELTAT	
0388			25,6440	77777 0			-	
0389	REF	1	25,6441	15573 1			CFACTOR	SCALED AT $2(+0)$
0390	REF	4 LAST 639	25,6442	33411 0		STORE	CBDT	SCALED AT $2(+4)$ M/CS
0391			25,6443	44775 1		VSLT	1	
0392			25,6444	74752 1		VSU	STZ	
0393	REF	4 LAST 639	25,6445	01417 1			VR	
0394			25,6446	00002 0			1	
0395	REF	15 LAST 617	25,6447	00774 0			VN	
0396	REF	21 LAST 519	25,6450	00123 1			OVFIND	FIRST PASS THRU CALCVGB MAY OVERFLOW
0397	REF	5 LAST 592	25,6451	33353 1		STORE	VG	SCALED AT $2(+7)$ M/CS
0398			25,6452	44576 0		ITCI	0	
0399	REF	24 LAST 639	25,6453	00052 0			S2	

L POWERED FLIGHT SUBROUTINES

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R0400 THESE ROUTINES COMPUTE VR FOR THE TWO NOMINAL SPS BURNS OF FLIGHT 501

0401		25,6454	75575 1	501SPS1	AXT,1	1	C(X1) = +0 (SPS1)
0402		25,6455	74572 1		AXT,2	ITC	C(X2) = +1 (SPS1)
0403		25,6456	00001 0			0	
0404		25,6457	00002 0			1	
0405		25,6460	12466 0			+5	

0406		25,6461	53575 0	501SPS2	AXC,1	1	C(X1) = -2 (SPS2)
0407		25,6462	52576 1		AXC,2		C(X2) = -1 (SPS2)
0408		25,6463	00003 1			2	
0409		25,6464	00002 0			1	

0410		25,6465	44170 1		DMOVE*	6	
0411		25,6466	62732 0		DDV	DSU	
0412		25,6467	51130 1		DSQ	DSU*	
0413		25,6470	65122 0		ABS	DMP	
0414		25,6471	62272 1		DDV*	TSRT	
0415		25,6472	53056 1		SQRT	SIGN	
0416		25,6473	75776 0		VXSC		

0417	REF	1	25,6474	03325 0		SEMILAT,1	SCALED AT 2(+27)M
0418	REF	1	25,6475	01024 0		RMAG	2(+25)M
0419	REF	1	25,6476	15565 0		DP2(-2)	
0420	REF	1	25,6477	03315 0		ESQ(VR),1	SCALED AT 2(+4)
0421	REF	1	25,6500	13376 1		MUE	SCALED AT 2(+38) M(+3)/CS(+2)
0422	REF	2 LAST 640	25,6501	03325 0		SEMILAT,1	
0423			25,6502	00006 1		5	
0424	REF	5 LAST 591	25,6503	00050 1		X2	
0425	REF	1	25,6504	01016 1		UNITR	VRAD TO PD SCALED AT 2(+11) M/CS

0426			25,6505	45174 1	DMOVE	2	
0427			25,6506	64312 0	DMP*	DDV	
0428			25,6507	53176 1	SQRT		
0429	REF	1	25,6510	13542 0		MUE(41)	
0430	REF	3 LAST 640	25,6511	03325 0		SEMILAT,1	
0431	REF	1	25,6512	01026 1		RMAGSQ	SCALED AT 2(+50)M(+2)
							VHOR MAG. TO PD SCALED AT 2(+9) M/CS

A0432			25,6513	41773 1	VXV	3	
0433			25,6514	73006 0	UNIT	VXV	
0434			25,6515	75642 0	VXSC	VAD	
0435			25,6516	44776 1	VSLT		
0437	REF	2 LAST 640	25,6517	01016 1		UNITR	
0438	REF	3 LAST 607	25,6520	01107 0		VIGNTION	
0439	REF	3 LAST 640	25,6521	01016 1		UNITR	
0440			25,6522	77777 0		-	
0441			25,6523	77777 0		-	
0442			25,6524	00004 0		3	
0443	REF	5 LAST 639	25,6525	33417 0	STORE	VR	
0453			25,6526	76776 0	ITC	0	
0454	REF	1	25,6527	12431 1		CALCCBDT	

L POWERED FLIGHT SUBROUTINES

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R0455 THIS ROUTINE COMPUTES VG, CBDT, FOR LANDING AREA CONTROL DURING BOOST ABORTS ON FLIGHT 501

0457			25,6530	41775 1	501ABORT	VXV	1	
04571			25,6531	44776 1		VSLT		
0458	REF	16 LAST 617	25,6532	00766 0			RN	
0459	REF	16 LAST 639	25,6533	00774 0			VN	
04591			25,6534	00002 0			1	4 SCALED 2(+31) M(+2)/CS
0460			25,6535	47575 0		NOLOD	1	
0461			25,6536	73176 0		UNIT		
0462	REF	1	25,6537	33367 0		STORE	UNITRXV	UNIT NORMAL TO PLANE, IP 2(+1)
0463			25,6540	66775 1		DSJ	1	
0464			25,6541	56776 1		TSRT		
0465	REF	1	25,6542	13131 0			RINTALT	
0466	REF	2 LAST 640	25,6543	01024 0			RMAG	
0467			25,6544	00003 1			2	(RE - R) MAG SCALED 2(+27)
0468			25,6545	41775 1		VXV	1	
0469			25,6546	44776 1		VSLT		
0470	REF	2 LAST 641	25,6547	01367 1			UNITRXV	IP
0471	REF	4 LAST 640	25,6550	01016 1			UNITR	IR
0472			25,6551	00002 0			1	TIMES 2
0473	REF	1	25,6552	33375 0		STORE	UNITHORZ	UNIT HORIZONTAL IN PLANE, IHP 2(+1)
0474			25,6553	47575 0		NOLOD	1	
0475			25,6554	42776 1		DOT		
0476	REF	17 LAST 641	25,6555	00774 0			VN	IHP.V SCALED 2(+8)
0477			25,6556	42774 0		DOT	2	
0478			25,6557	56712 0		TSRT	DDV	
0479			25,6560	64776 0		DMP		
0480	REF	18 LAST 641	25,6561	00774 0			VN	
0481	REF	5 LAST 641	25,6562	01016 1			UNITR	IR.V SCALED 2(+8)
0482			25,6563	00004 0			3	TIMES 2(-3)
0483			25,6564	77777 0			-	DIVIDE BY IHP.V SCALED 2(+8)
0484	REF	2 LAST 641	25,6565	13131 0			RINTALT	RE COT(GAMMA) SCALED 2(+28)
0485			25,6566	67175 0		VSQ	1	
0486			25,6567	62776 0		DDV		
0487			25,6570	00001 0			0	H SCALED 2(+31)
0488	REF	2 LAST 640	25,6571	13376 1			MUE	H(SQ)/MUE = P SCALED 2(+24)
0489			25,6572	67175 0		VSQ	1	
0490			25,6573	56712 0		TSRT	DDV	
0491	REF	19 LAST 641	25,6574	00774 0			VN	V(SQ) 2(+14)
0492			25,6575	00005 1			4	TIMES 2(-4)
0493	REF	3 LAST 641	25,6576	13376 1			MUE	V(SQ)/MUE SCALED 2(-20)

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0494			25,6577	62774 1	DDV	2	
0495			25,6600	66722 0	DSJ	DMP	
0496			25,6601	65776 1	BDSJ		
0497	REF	1	25,6602	13133 1		DP2(-4)	
0498	REF	3 LAST 641	25,6603	01024 0		RMAG	
0499			25,6604	77777 0		-	
0500	REF	3 LAST 641	25,6605	13131 0		RINTALT	
0501	REF	2 LAST 642	25,6606	13133 1		DP2(-4)	(1+RE((V**2/2 MUE)-1/R)) SCALED 2(+4)
0502			25,6607	47574 1	NOLOD	2	
0503			25,6610	73653 0	BMN	SQRT	
0504			25,6611	64716 0	DMP	TSLT	
0505	REF	1	25,6612	13115 0		SMACHECK	SMA LESS THAN RE/2
0506	REF	1	25,6613	13153 1		V400	
0507			25,6614	00003 1		2	VE TO PD SCALED 2(+7) M/CS
0508			25,6615	66775 1	DSJ	1	
0509			25,6616	43776 0	BPL		
0510	REF	1	25,6617	13157 0		VCRIT	22,000 FT/SEC SCALED 2(+7) M/CS
0511			25,6620	77777 0		-	VE SCALED 2(+7) M/CS
0512	REF	1	25,6621	13104 0		GETRANGE	SET RANGE TO MINRANGE
0513			25,6622	64774 1	DMP	2	
0514			25,6623	70722 1	DAD	DMP	
0515			25,6624	70716 0	DAD	TSLT	
0516			25,6625	00017 1		14D	VE SCALED 2(+7)
0517	REF	1	25,6626	13147 1		KRANGE2	
0518	REF	1	25,6627	13145 0		KRANGE1	
0519			25,6630	00017 1		14D	VE SCALED 2(+7)
0520	REF	1	25,6631	13143 0		KRANGE0	
0521			25,6632	00005 1		4	
0522			25,6633	32025 1	STORE	20D	ENTRY RANGE ANGLE SCALED 2(+0) REVS.
0523			25,6634	47575 0	GOTRANGE NOLOD	1	
0524			25,6635	55166 0	COS	VXSC	
0525	REF	2 LAST 555	25,6636	01531 1		RTATLANT	RADIAL COMP UNIT TARG VECT 2(+2)
0526			25,6637	57175 0	SIN	1	
0527			25,6640	63776 1	TSLT		
0528			25,6641	00025 0		20D	
0529			25,6642	00002 0		1	SINE OF RANGE ANGLE 2(+0)
0530			25,6643	41775 1	VXV	1	
0531			25,6644	73176 0	UNIT		
0532	REF	3 LAST 642	25,6645	01531 1		RTATLANT	
0533	REF	6 LAST 641	25,6646	01016 1		UNITR	
0534			25,6647	32027 0	STORE	22D	-UNITN, -IN, DESIRED NORMAL SCALED 2(+1)
0535			25,6650	47574 1	NOLOD	2	
0536			25,6651	41766 0	VXV	VXSC	

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0537			25,6652	50622 1	VAD	VSLT	
0538	REF	4 LAST 642	25,6653	01531 1		RTATLANT	
0539			25,6654	77777 0		-	
0540			25,6655	77777 0		-	
0541			25,6656	00002 0		1	
0542	REF	1	25,6657	33433 0	STORE	RTARG	UNIT TARGET VECTOR SCALED 2(+1)
0543			25,6660	64771 1	DMP	5	
0544			25,6661	62732 0	DDV	DSU	
0545			25,6662	73653 0	BMN	SQRT	
0546			25,6663	64726 0	DMP	BDSU	
0547			25,6664	61746 0	BDDV	BOV	
0548			25,6665	76472 1	RTB	TSRT	
0549	REF	4 LAST 642	25,6666	13131 0		RINTALT	RE SCALED 2(+25)
0550			25,6667	77777 0		-	
0551			25,6670	77777 0		-	P SCALED 2(+24)
0552	REF	1	25,6671	13135 1		DP2(-6)	
0553	REF	1	25,6672	13121 1		GAMCHECK	COT(GAMMAE) SQ NEGATIVE
0554	REF	4 LAST 642	25,6673	01024 0		RMAG	R COT(GAMMAE) SCALED 2(+28)
0555			25,6674	77777 0		-	RE COT(GAMMA) SCALED 2(+28)
0556			25,6675	77777 0		-	(RE - R) SCALED 2(+27)
0557	REF	1	25,6676	13125 0		TANCHECK	TAN(THETAFF/2) EXCEEDS ----
0558	REF	7 LAST 610	25,6677	20265 1		FRESHPD	ZERO PD POINTER
0559			25,6700	00010 0		7D	X = TAN(THETAFF/2) SCALED 2(+6)
0560			25,6701	47575 0	NOLOD	1	
0561			25,6702	51142 1	DSQ	DAD	
0562	REF	1	25,6703	13141 1		DP2(-12)	DENOMINATOR SCALED 2(+12)
0563			25,6704	47574 1	NOLOD	2	
0564			25,6705	66633 1	DSJ	COMP	
0565			25,6706	62776 0	DDV		
0566	REF	1	25,6707	13137 0		DP2(-11)	1 - X(SQ) SCALED 2(+12)
0567			25,6710	00003 1		2	COSEFF SCALED 2(+0)
0568			25,6711	42774 0	DOT	2	
0569			25,6712	63732 1	TSLT	DSU	
0570			25,6713	43776 0	BPL		
0571	REF	7 LAST 642	25,6714	01016 1		UNITR	
0572	REF	2 LAST 643	25,6715	01433 1		RTARG	
0573			25,6716	00003 1		2	COS ANGLE R TO TARG 2(+0)
0574			25,6717	00005 1		4	COS FREE FALL ANGLE 2(+0)
0575	REF	1	25,6720	13111 1		PASTIT	FF ANGLE EXCEEDS ANGLE TO TARGET
0576			25,6721	56775 1	TSRT	1	
0577			25,6722	62766 1	DDV	VXSC	
0578			25,6723	00001 0		0	
0579			25,6724	00006 1		5	
0580			25,6725	00003 1		2	SINEFF SCALED 2(+0)
0581	REF	2 LAST 641	25,6726	01375 1		UNITHORZ	IHP SINEFF SCALED 2(+1)

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0582			25,6727	75775 0	VXSC	1	
0583			25,6730	50762 1	VAD	VSU	
0584	REF	8 LAST 643	25,6731	01016 1		UNITR	
0585			25,6732	00005 1		4	IR COEFF 2(+1)
0586			25,6733	77777 0		-	UNIT VECTOR ALONG ENTRY-POINT VECT 2(+1)
0587	REF	3 LAST 643	25,6734	01433 1		RTARG	MINUS UNIT TARGET VECTOR 2(+1)
0588			25,6735	47575 0	NOLOD	1	
0589			25,6736	71176 1	ABVAL		
0590			25,6737	32003 0	STORE	2	D SCALED 2(+2)
0591			25,6740	71174 0	ABVAL	2	
0592			25,6741	75612 0	VXSC	DOT	
0593			25,6742	56776 1	TSRT		
0594	REF	20 LAST 641	25,6743	00774 0		VN	
0595	REF	3 LAST 643	25,6744	01375 1		UNITHORZ	
0596			25,6745	00027 1		22D	-UNITN 2(+1)
0597			25,6746	00002 0		1	DELTA V NORMAL SCALED 2(+11)
0598			25,6747	71174 0	ABVAL	2	
0599			25,6750	65716 1	BDSU	TSLT	
0600			25,6751	65176 1	ABS		
0601	REF	1	25,6752	01425 0		DIFFVECT	MAG OLD DIFFVECT 2(+2) AFTER ABVAL
0602			25,6753	00003 1		2	NEW MAG DIFFVECT 2(+2)
0603			25,6754	00002 0		1	DELD SCALED 2(+1)
0604			25,6755	47576 0	NOLOD	0	
0605			25,6756	32001 1	STORE	0	DELD TO PD 0 ALSO
0606			25,6757	64773 0	DMP	3	
0607			25,6760	56712 0	TSRT	DDV	
0608			25,6761	70706 1	DAD	BDDV	
0609			25,6762	71672 1	BOV	TSRT	
0610	REF	10 LAST 639	25,6763	01030 0		DELTAT	
0611			25,6764	00003 1		2	
0612			25,6765	00016 0		13D	
0613			25,6766	77777 0		-	
0614	REF	1	25,6767	13155 1		TGOBIAS	5 SECS
0615			25,6770	77777 0		-	ATTEMPT TO COMPUTE NEW ANORMAL 2(-12)
0616	REF	1	25,6771	13066 0		ANOVFLOW	IF OVF, ANORMAL = 8 FT/S/S SIGN DELTA V
0617			25,6772	00004 0		3	SCALE AN TRIAL BACK TO 2(-9)
0618	REF	1	25,6773	33441 0	STORE	ANORMAL	ANORMAL SCALED 2(-9) M/CS(+2)
0619			25,6774	47575 0	GO-ON NOLOD	1	
0620			25,6775	75776 0	VXSC		
0621	REF	3 LAST 641	25,6776	01367 1		UNITRXV	ANORMAL ALONG IP SCALED 2(-8)
0622			25,6777	75775 0	VXSC	1	
0623			25,7000	71176 1	ABVAL		
0624	REF	18 LAST 605	25,7001	01002 1		DELV	

L POWERED FLIGHT SUBROUTINES

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0625	REF	2 LAST 590	25,7002	21742 0		KPIP	
0626			25,7003	32005 0	STORE	4	MEASURED DELTA V SCALED 2(+5)
0627			25,7004	47573 0	NOLOD	3	
0628			25,7005	62722 1	DDV	DMP	
0629			25,7006	63766 0	TSLT	VXSC	
0630			25,7007	50753 0	VAD	UNIT	
0631	REF	11 LAST 644	25,7010	01030 0		DELTAT	
0632	REF	1	25,7011	13167 0		FULHAM	APPROX COS OF THRUST ONTO HORIZ PLANE
0633			25,7012	00006 1		5	
0634	REF	4 LAST 644	25,7013	01375 1		UNITHORZ	COEF OF SIN TERM OF IT SCALED 2(+1)
0635			25,7014	62775 0	DDV	1	
0636			25,7015	63142 0	ASIN	DAD	
0637	REF	1	25,7016	13165 1		RVH	RADIUS TO VISUAL HORIZON SCALED 2(+26) M
0638	REF	5 LAST 643	25,7017	01024 0		RMAG	R SCALED 2(+25)
0639	REF	4 LAST 588	25,7020	01443 0		LOOKANG	PHI SCALED 2(+0) REV.
0640			25,7021	47575 0	NOLOD	1	
0641			25,7022	55166 0	COS	VXSC	
0642	REF	9 LAST 644	25,7023	01016 1		UNITR	COS(PHI) IR SCALED 2(+2)
0643			25,7024	57174 1	SIN	2	
0644			25,7025	75762 0	VXSC	VSU	
0645			25,7026	44776 1	VSLT		
0646			25,7027	00023 0		18D	PHI
0647			25,7030	00015 0		12D	SIN COEF SCALED 2(+1)
0648			25,7031	77777 0		-	COS(PHI) SCALED 2(+2)
0649			25,7032	00002 0		1	UNIT FINAL, IT, SCALED 2(+1)
0650			25,7033	64773 0	DMP	3	
0651			25,7034	62716 0	DDV	TSLT	
06515			25,7035	71672 1	DDV	TSRT	
0652			25,7036	75771 1	VXSC	RTB	
0653			25,7037	00003 1		2	D 2(+2)
0654			25,7040	00005 1		4	DELTA V 2(+5)
0655			25,7041	00001 0		0	DELTA D 2(+1)
06554			25,7042	00002 0		1	IS MAG VG GR THAN 2(+5) M/CS
06556	REF	1	25,7043	13074 0		FIXVG	IF YES, SET MAG VG TO 2(+5) M/CS
06558			25,7044	00002 0		1	IF NO, SCALE MAG VG BACK TO 2(+6)
0656			25,7045	77777 0		-	IT 2(+1)
0657	REF	8 LAST 643	25,7046	20265 1		FRESHPD	ZERO PD POINTER
0658	REF	6 LAST 639	25,7047	33353 1	STORE	VG	VG SCALED 2(+7) M/CS
0659			25,7050	75176 0	PREXIT	VMOVE	0
0660			25,7051	00007 0		6	
0661	REF	2 LAST 644	25,7052	33425 1	STORE	DIFFVECT	SAVE NEW DIFFVECT SCALED 2(+1)
0662			25,7053	75176 0		VMOVE	0
0663	REF	2 LAST 326	25,7054	15575 1		ZEROVEC	

L POWERED FLIGHT SUBROUTINES

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0664	REF	5 LAST 639	25,7055	33411 0	STORE	CBDT	CBDT = 0 FOR 501 ABORTS
0665			25,7056	44576 0	ITCI	0	
0666	REF	25 LAST 639	25,7057	00052 0		S2	RETURN
0667	REF	81 LAST 629	25,7060	0 4000 0	CHEKEXIT	TC	EXIT FOR VR CHECK FAILURES
0668			25,7061	76575 1	RTB	1	
0669			25,7062	76776 0	ITC		
0670	REF	9 LAST 645	25,7063	20265 1		FRESHPD	ZERO PD POINTER
0671	REF	1	25,7064	25657 1		VRFAIL	
0672			25,7065	53776 1	ANOVFLOW	SIGN	
0673	REF	1	25,7066	13161 0		ANPSEUDO	AN = 8 FT/S/S SIGNED WITH DELTA V
0674			25,7067	00015 0		12D	DELTA V
0675	REF	2 LAST 644	25,7070	33441 0	STORE	ANORMAL	
0676			25,7071	76776 0	ITC	0	
0677	REF	1	25,7072	12775 1		GO-ON	
06771			25,7073	75175 0	FIXVG	VMOVE	1
06772			25,7074	75771 1		VXSC	RTB
06773			25,7075	77777 0			-
06774	REF	1	25,7076	15573 1			DP2(-1)
06775	REF	10 LAST 646	25,7077	20265 1		FRESHPD	ZERO PD POINTER
06776	REF	7 LAST 645	25,7100	33353 1	STORE	VG	MAG VG 2(+5) M/CS SCALED 2(+7)
06777			25,7101	76776 0	ITC	0	
06778	REF	1	25,7102	13051 1		PREXIT	GO CLOSE OUT 501 ABORT
0678			25,7103	45176 0	GETRANGE	DMOVE	0
0679	REF	1	25,7104	13151 0		MINRANGE	
0680			25,7105	32025 1	STORE	20D	FREEZE RANGE ANGLE AT MINRANGE
0681			25,7106	76776 0	ITC	0	
0682	REF	1	25,7107	12635 1		GOTRANGE	CONTINUE
0683			25,7110	77576 0	PASTIT	EXIT	0
0684	REF	22 LAST 629	25,7111	0 3007 0		TC	ALARM
0685			25,7112	01403 1		OCT	01403
0686	REF	1	25,7113	0 7060 0		TC	CHEKEXIT
0687			25,7114	77576 0	SMACHECK	EXIT	0
0688	REF	23 LAST 646	25,7115	0 3007 0		TC	ALARM
0689			25,7116	01404 0		OCT	01404
0690	REF	2 LAST 646	25,7117	0 7060 0		TC	CHEKEXIT
0691			25,7120	77576 0	GAMCHECK	EXIT	0
0692	REF	24 LAST 646	25,7121	0 3007 0		TC	ALARM
0693			25,7122	01405 1		OCT	01405

L POWERED FLIGHT SUBROUTINES

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0694	REF	3 LAST 646	25,7123	0 7060 0	TC	CHEKEXIT		
0695			25,7124	77576 0	TANCHECK	EXIT	0	
0696	REF	25 LAST 646	25,7125	0 3007 0	TC	ALARM		
0697			25,7126	01406 1	OCT	01406		
0698	REF	4 LAST 647	25,7127	0 7060 0	TC	CHEKEXIT		
0699			25,7130	06145 1	RINTALT	2DEC	6500085 B-25	400K FT RADIUS
C0699			25,7131	33650 1				
0700			25,7132	02000 0	DP2(-4)	2DEC	0.0625	
C0700			25,7133	00000 1				
0701			25,7134	00400 0	DP2(-6)	2DEC	0.015625	
C0701			25,7135	00000 1				
0702			25,7136	00010 0	DP2(-11)	2DEC	0.000488281	
C0702			25,7137	00000 1				
0703			25,7140	00004 0	DP2(-12)	2DEC	0.000244141	
C0703			25,7141	00000 1				
0704			25,7142	06010 0	KRANGE0	2DEC	0.188045173	2(+4)
C0704			25,7143	35650 1				
0705			25,7144	51120 0	KRANGE1	2DEC	-.713839193	2(+11)
C0705			25,7145	56532 0				
0706			25,7146	25641 0	KRANGE2	2DEC	0.681759381	2(+18)
C0706			25,7147	36206 0				
0707			25,7150	00467 1	MINRANGE	2DEC	0.019010080	6.8436288 DEG 2(+0) REVS.
C0707			25,7151	16603 0				
0708			25,7152	33537 0	V400	2DEC	0.865198746	110.7454396 2(+7) M/CS
C0708			25,7153	15244 1				
0709			25,7154	00000 1	TGOBIAS	2DEC	0.000059605	5 SECS 2(+23) CS
C0709			25,7155	37200 1				
0710			25,7156	20607 1	VCRIT	2DEC	0.523875000	22,000 FT/SEC 2(+7) M/CS
C0710			25,7157	05301 0				
0711			25,7160	03775 1	ANPSEUDO	2DEC	0.124846080	8 FT/S/S 2(-9) M/CS/CS
C0711			25,7161	17232 1				
0712			25,7162	06052 0	RE	2DEC	0.190084130	6.378165 E6 M 2(+25) M
C0712			25,7163	12650 1				
0713			25,7164	03025 0	RVH	2DEC	0.095042065	6.378165 E6 M 2(+26) M
C0713			25,7165	05324 1				
0714			25,7166	36044 1	FULHAM	2DEC	0.9397046	COS 20 DEG.
C0714			25,7167	03661 0				

L POWERED FLIGHT SUBROUTINES

USER'S OWN PAGE NO. 21

R0715 THESE ROUTINES COMPUTE VR TO ACHIEVE A CIRCULAR EARTH- OR MOON-CENTERED ORBIT

0717			25,7170	45175 0	EARTHORB DMOVE	1	
0718			25,7171	76776 0	ITC		
0719	REF	4 LAST 641	25,7172	13376 1		MUE	
0720	REF	1	25,7173	13201 0		SQRTMU/R	
0721			25,7174	45175 0	LUNDEBST DMOVE	1	
0722			25,7175	63576 0	INCR,1		
0723	REF	1	25,7176	13400 1		MUM	
0724			25,7177	00007 0		6D	
0725			25,7200	47574 1	SQRTMU/R NOLOD	2	
0726			25,7201	62714 1	DDV	TSLT*	
0727			25,7202	53176 1	SQRT		
0728	REF	6 LAST 645	25,7203	01024 0		RMAG	
0729			25,7204	00021 1		8D,1	C(X1) =14-N (EARTH) =20-N (MOON)
A0730							
0731			25,7205	41775 1	VXV	1	
0732			25,7206	73166 1	UNIT	VXSC	
0733	REF	10 LAST 645	25,7207	01016 1		UNITR	
0734	REF	1	25,7210	01323 1		UNITN	
0735	REF	6 LAST 640	25,7211	33417 0	STORE	VR	VR SCALED AT 2(+8)M/CS
0736			25,7212	76776 0	ITC	0	
0737	REF	2 LAST 640	25,7213	12431 1		CALCCBDT	

L POWERED FLIGHT SUBROUTINES

USER'S OWN PAGE NO. 22

R0738 THIS ROUTINE COMPUTES VR TO ACHIEVE HYPERBOLIC VELOCITY VF FOR TRANSEARTH INJECTION

0740			25,7214	62775 0	TRANSEAR DDV	1	
0741			25,7215	63376 0	TSLT*		
0742	REF	2 LAST 648	25,7216	13400 1		MUM	
0743	REF	7 LAST 648	25,7217	01024 0		RMAG	
0744			25,7220	00011 1		4,1	
0745			25,7221	73176 0	UNIT	0	
0746	REF	1	25,7222	01323 1		VF	VF SCALED AT 2(+4)M/CS
0747	REF	1	25,7223	33367 0	STORE	UNITF	
0748			25,7224	47572 1	NOLOD	4	
0749			25,7225	42742 0	DOT	DAD	
0750			25,7226	64716 0	DMP	TSLT	
0751			25,7227	61742 1	BDDV	DAD	
0752			25,7230	53176 1	SQRT		
0753	REF	11 LAST 648	25,7231	01016 1		UNITR	
0754	REF	2 LAST 640	25,7232	15565 0		DP2(-2)	
0755			25,7233	00035 1		28D	(VF SQ)
0756			25,7234	00004 0		3	
0757			25,7235	77777 0		-	
0758	REF	1	25,7236	13263 1		DP2(-10)	
0759			25,7237	32033 0	STORE	26D	SCALED AT 2(+5)
0760			25,7240	47575 0	NOLOD	1	
0761			25,7241	70766 1	DAD	VXSC	
0762	REF	1	25,7242	13261 0		DP2(-5)	
0763	REF	2 LAST 649	25,7243	01367 1		UNITF	
0764			25,7244	66774 0	DSJ	2	
0765			25,7245	75642 0	VXSC	VAD	
0766			25,7246	75622 0	VXSC	VSLT	
0767			25,7247	00033 1		26D	
0768	REF	2 LAST 649	25,7250	13261 0		DP2(-5)	
0769	REF	12 LAST 649	25,7251	01016 1		UNITR	
0770			25,7252	77777 0		-	
0771			25,7253	00037 0		30D	(VF)
0772			25,7254	00003 1		2	
0773	REF	7 LAST 648	25,7255	33417 0	STORE	VR	VR SCALED AT 2(+8)M/CS
0774			25,7256	76776 0	ITC	0	
0775	REF	3 LAST 648	25,7257	12431 1		CALCCBDT	
0776			25,7260	01000 0	DP2(-5) 2DEC	0.03125	
C0776			25,7261	00000 1			
0777			25,7262	00020 0	DP2(-10) 2DEC	0.000976563	
C0777			25,7263	00000 1			

L POWERED FLIGHT SUBROUTINES

USER'S OWN PAGE NO. 23

R0778 THIS ROUTINE COMPUTES VR TO ACHIEVE A TRANSLUNAR ELLIPSE DEFINED BY A TARGET VECTOR RTRNSLUN AND A SEMI MAJOR
 R0780 AXIS SMA

0781		25,7264	63775 1	TRANSLUN	TSLT	1	
0782		25,7265	53176 1		SQRT		
0783	REF 5 LAST 648	25,7266	13376 1			MUE	
0784		25,7267	00002 0			1	
0785		25,7270	45175 0		DMOVE	1	
0786		25,7271	56376 0		TSRT*		
0787		25,7272	00037 0			30D	(RN)
0788		25,7273	00025 0			10D,1	RN RESCALED TO 2(+26)M
0789		25,7274	75174 1		VMOVE	2	
0790		25,7275	45232 0		VSRT*	BVSU	
0791		25,7276	73026 1		UNIT	VSRT	
0792	REF 17 LAST 641	25,7277	00766 0			RN	
0793		25,7300	00025 0			10D,1	RTRNSLUN-RMAG SCALED AT 2(+25)M
0794	REF 1	25,7301	01323 1			RTRNSLUN	
0795		25,7302	00002 0			1	
0796		25,7303	45775 0		VSRT	1	
0797		25,7304	46776 0		BVSU		
0798	REF 13 LAST 649	25,7305	01016 1			UNITR	
0799		25,7306	00002 0			1	
0800	REF 1	25,7307	33367 0		STORE	UNITD	
0801		25,7310	47575 0		NOLOD	1	
0802		25,7311	50776 1		VAD		
0803	REF 14 LAST 650	25,7312	01016 1			UNITR	
0804	REF 1	25,7313	33375 0		STORE	UNITS	
0805		25,7314	71174 0		ABVAL	2	
0806		25,7315	70742 1		DAD	DAD	
0807		25,7316	56776 1		TSRT		
0808	REF 2 LAST 650	25,7317	01323 1			RTRNSLUN	
0809		25,7320	00037 0			30D	(C)
0810		25,7321	77777 0			-	(RN)
0811		25,7322	00002 0			1	
0812	REF 1	25,7323	33433 0		STORE	5	S SCALED AT 2(+26)M
0813		25,7324	47575 0		NOLOD	1	
0814		25,7325	66676 0		DSJ	TSLC	
0815		25,7326	00037 0			30D	(C)
0816	REF 6 LAST 640	25,7327	00050 1			X2	
0817	REF 1	25,7330	33435 0		STORE	DN	
0818		25,7331	47575 0		NOLOD	1	

L POWERED FLIGHT SUBROUTINES

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0819			25,7332	56326 0	TSRT*	BDSU	
0820			25,7333	00016 0		6,2	
0821	REF	1	25,7334	01437 0		SMA	
0822			25,7335	64773 0	DMP	3	
0823			25,7336	61711 1	BDDV	INCR,2	
0824			25,7337	63253 0	TSLT*	SQRT	
0825			25,7340	53766 0	SIGN	VXSC	
0826	REF	2 LAST 651	25,7341	01437 0		SMA	
0827	REF	2 LAST 650	25,7342	01435 1		DN	
0828			25,7343	77777 0		-	
0829			25,7344	00021 1		16D	
0830			25,7345	00002 0		0,2	
0831	REF	1	25,7346	01425 0		SGNTHETA	
0832	REF	2 LAST 650	25,7347	01375 1		UNITS	
0833			25,7350	56775 1	TSRT	1	
0834			25,7351	65672 1	BDSU	TSRT	
0835	REF	2 LAST 650	25,7352	01433 1		5	
0836			25,7353	00007 0		6D	
0837	REF	3 LAST 651	25,7354	01437 0		SMA	
0838			25,7355	00005 1		4	
0839			25,7356	64772 1	DMP	4	
0840			25,7357	61653 0	BDDV	SQRT	
0841			25,7360	56766 0	TSRT	VXSC	
0842			25,7361	50622 1	VAD	VSLT	
0843			25,7362	75776 0	VXSC		
0844	REF	4 LAST 651	25,7363	01437 0		SMA	
0845	REF	3 LAST 651	25,7364	01433 1		5	
0846			25,7365	77777 0		-	
0847			25,7366	00007 0		6	
0848	REF	2 LAST 650	25,7367	01367 1		UNITD	
0849			25,7370	77777 0		-	
0850			25,7371	00012 1		9D	
0851	REF	8 LAST 649	25,7372	33417 0	STORE	VR	VR SCALED AT 2(+8)M/CS
0852			25,7373	76776 0	ITC	0	
0853	REF	4 LAST 649	25,7374	12431 1		CALCCBDT	
0854			25,7375	04507 1	MUE	2DEC	0.145011008 3.98603223 E14 SCALED 2(+38)M(+3)/CS(+2)
C0854			25,7376	33420 1			
0855			25,7377	03516 0	MUM	2DEC	0.114151696 4.90277800 E08 SCALED 2(+32)M(+3)/CS(+2)
C0855			25,7400	10273 0			

L POWERED FLIGHT SUBROUTINES

USER'S OWN PAGE NO. 25

P0856 THIS ROUTINE COMPUTES THE DESIRED THRUST DIRECTION AS A HALF UNIT VECTOR XSC. IT COMPUTES THE HALF UNIT VECTOR
 R0858 YSC ALONG RN*XSC (I.E. DEFINES A PITCH AXIS HORIZONTAL, YAW AXIS UP ROLL ATTITUDE) AND ZSC ALONG XSC*YSC. IT
 R0860 REQUIRES PRIOR PASSES THROUGH ROUTINES CALCRVG AND CALCVGB TO ESTABLISH UNITR, VG, AND CBDT. X1 MUST CONTAIN
 R0862 0,2,4... TO LOAD THE APPROPRIATE INTEGRATED INITIAL THRUST ACCELERATION MAGNITUDE ATDT

0864			25,7401	73176 0	CALCXSC	UNIT	0	
0865	REF	8 LAST 646	25,7402	01353 0			VG	
0866	REF	1	25,7403	33353 1		STORE	UNITVG	
0867			25,7404	47574 1		NOLOD	2	
0868			25,7405	40622 0		VPROJ	VSLT	
0869			25,7406	46776 0		BVSU		
0870	REF	6 LAST 646	25,7407	01411 1			CBDT	SCALED AT 2(+4) M/CS
0871			25,7410	00003 1			2	
0872	REF	7 LAST 652	25,7411	01411 1			CBDT	
0873			25,7412	47571 1		NOLOD	5	
0874			25,7413	71110 1		ABVAL	DDV*	
0875			25,7414	51126 0		DSQ	BDSU	
0876			25,7415	53120 1		SQRT	DMP*	
0877			25,7416	63766 0		TSLT	VXSC	
0878			25,7417	50753 0		VAD	UNIT	
0879	REF	1	25,7420	03631 0			ATDT,1	SCALED AT 2(+5)M/CS
0880	REF	2 LAST 382	25,7421	21043 0			NEARONE	
0881	REF	2 LAST 652	25,7422	03631 0			ATDT,1	
0882			25,7423	00003 1			2	
0883	REF	2 LAST 652	25,7424	01353 0			UNITVG	
0884	REF	6 LAST 634	25,7425	33367 0		STORE	XSC	
0885			25,7426	47574 1		NOLOD	2	
0886			25,7427	41753 0		VXV	UNIT	
0887			25,7430	47176 1		COMP		
0888	REF	15 LAST 650	25,7431	01016 1			UNITR	
0889	REF	4 LAST 634	25,7432	33375 0		STORE	YSC	
08891			25,7433	43575 1		TEST	1	
08892			25,7434	75033 0		VMOVE	COMP	
08893	REF	3 LAST 596	25,7435	00054 0			SPS2FLAG	
08894	REF	1	25,7436	13442 1			HEADWN2	
08895	REF	5 LAST 652	25,7437	01375 1			YSC	
08896	REF	6 LAST 652	25,7440	33375 0		STORE	YSC	
0890			25,7441	47574 1	HEADWN2	NOLOD	2	
0891			25,7442	41753 0		VXV	UNIT	
0892			25,7443	47176 1		COMP		
0893	REF	7 LAST 652	25,7444	01367 1			XSC	
0894	REF	4 LAST 634	25,7445	33403 0		STORE	ZSC	

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0895

25,7446

40576 1

ITCQ 0

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R0896 THIS ROUTINE RESOLVES THE VECTOR IN RTINIT THROUGH AN ANGULAR ROTATION WIE(DTEAROT) SCALED AT ONE REV-
 R0898 OLUTION ABOUT THE UNIT POLAR AXIS UNITW. IT REQUIRES DTEAROT SCALED AT 2(+28)CS. IT LEAVES THE RESOLVED
 R0900 VECTOR IN RT WITH EASTERLY AND NORMAL COMPONENTS IN RTEAST AND RTNORM RESPECTIVELY, AT THE SAME SCALING. FOR
 R0902 CONTINUOUS UPDATING ONLY ONE ENTRY AT EARROT1 IS REQUIRED, WITH SUBSEQUENT ENTRIES AT EARROT2

0904			25,7447	41775 1	EARROT1	VXV	1	
0905			25,7450	44776 1		VSLT		
0906	REF	2 LAST 355	25,7451	01044 0			UNITW	
0907	REF	4 LAST 582	25,7452	01115 0			RTINIT	
0908			25,7453	00003 1			2	
0909	REF	1	25,7454	33123 1		STORE	RTEAST	
0910			25,7455	47575 0		NOLOD	1	
0911			25,7456	41622 1		VXV	VSLT	
0912	REF	3 LAST 654	25,7457	01044 0			UNITW	
0913			25,7460	00002 0			1	
0914	REF	1	25,7461	33131 1		STORE	RTNORM	
0915			25,7462	72775 1	EARROT2	STZ	1	BRANCH TO OVERADAY UNTIL DTEAROT
0916			25,7463	62746 0		DDV	BOV	LESS THAN ONE SIDEREAL DAY
0917	REF	22 LAST 639	25,7464	00123 1			OVFIND	
0918	REF	4 LAST 582	25,7465	01145 0			DTEAROT	
0919	REF	1	25,7466	13520 1			1/WIE	TIME FOR ONE SIDEREAL REVOLUTION
0920	REF	1	25,7467	13507 1			OVERADAY	
0921			25,7470	32037 1		STORE	30D	
0922			25,7471	47574 1		NOLOD	2	
0923			25,7472	55132 1		COS	DSU	
0924			25,7473	75776 0		VXSC		
0925	REF	2 LAST 646	25,7474	15573 1			DP2(-1)	
0926	REF	2 LAST 654	25,7475	01131 0			RTNORM	
0927			25,7476	57174 1		SIN	2	
0928			25,7477	75642 0		VXSC	VAD	
0929			25,7500	50776 1		VAD		
0930			25,7501	00037 0			30D	
0931	REF	2 LAST 654	25,7502	01123 0			RTEAST	
0932	REF	5 LAST 654	25,7503	01115 0			RTINIT	
0933	REF	1	25,7504	33215 1		STORE	RT	
0934			25,7505	40576 1		ITCQ	0	
0935			25,7506	53775 1	OVERADAY	SIGN	1	
0936			25,7507	65776 1		BDSU		
0937	REF	2 LAST 654	25,7510	13520 1			1/WIE	
0938	REF	5 LAST 654	25,7511	01145 0			DTEAROT	
0939	REF	6 LAST 654	25,7512	01145 0			DTEAROT	
0940	REF	7 LAST 654	25,7513	33145 1		STORE	DTEAROT	

L POWERED FLIGHT SUBROUTINES

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0941			25,7514	43776 0	BPL	0	GO BACK WITHOUT DISTURBING @PRET.
0942	REF	3 LAST 654	25,7515	13520 1		1/WIE	ANY POSITIVE CONSTANT WILL DO.
0943	REF	2 LAST 353	25,7516	13463 1		EARROT2	
0944			25,7517	01015 1	1/WIE	2DEC	0.032098629
C0944			25,7520	34732 0			8.61641000 E4 SECS SCALED AT 2(+28)CS

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R0945 CONVERSION CONSTANTS FOR FREE FALL INTEGRATION PROGRAM

0946	25,7521	20304 1	SCLRAVMD 2DEC	.512
C0946	25,7522	23351 1		
0947	25,7523	37200 1	SCLRMDAV 2DEC	1000 B-10
C0947	25,7524	00000 1		
0948	25,7525	21601 0	SCLTAVMD 2DEC	4.4384169 B-3
C0948	25,7526	34056 0		
0949	25,7527	24605 1	SCLVAVMD 2DEC	.64876819
C0949	25,7530	15301 1		
0950	25,7531	30523 0	SCLVMDAV 2DEC	.770691300
C0950	25,7532	00147 0		

R0951	POWERED FLIGHT CONSTANTS, DELCDU SCALED AT KE/2 REVS (KE =A/P GAIN=1.5) EVS (KE =A/P GAIN =1.5)				
0957	25,7533	00134 1	DELCDU 2DEC	0.00566	(=1.02 DEG)
C0957	25,7534	27361 0			
0958	25,7535	00113 1	2DEC	0.00462	(=0.83 DEG)
C0958	25,7536	26154 0			
0959	25,7537	00216 1	2DEC	0.00872	(=1.57 DEG)
C0959	25,7540	33625 0			
0960	25,7541	00450 0	MUE(41) 2DEC	.145011008 B-3	SCALED AT 2(+41)M(+3)/CS(+2)
C0960	25,7542	37342 0			

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L POWERED FLIGHT SUBROUTINES

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P0963 ROUTINE CALCMANU COMPUTES THE SEQUENCE OF MANUEVERS REQUIRED IN GOING FROM AN INITIAL ATTITUDE DEFINED BY THE
R0965 EULER ANGLES IN THETAD,+1,+2 WHICH ARE THE PRESENT OUTER, MIDDLE, INNER GIMBAL ANGLES, TO AN ATTITUDE DEFINED
R0967 BY THE MATRIX X,Y,ZSCD, THE DESIRED BODY AXES. CALCMANU WILL EXIT WITH A MANEUVER ANGLE IN THETAMAN SCALED AT
R09672 1 REV, AND THE HALF UNIT VECTOR IN WC. ROTATIONS ARE BASED ON A PITCH/YAW-THEN ROLL POLICY. IF THIS
R09674 POLICY WOULD CAUSE GIMBAL LOCK, A ROLL-PITCH/YAW-ROLL IS ADOPTED. IN EXTREMELY RARE CASES, INVOLVING MANEU-
R09676 VERS FROM ONE GIMBAL LOCK AREA TO THE OTHER, THE POLICY MAY BE PITCH/YAW-ROLL-PITCH/YAW-ROLL, OR EVEN ROLL-
R09678 PITCH/YAW-ROLL-PITCH/YAW-ROLL. IN ALL CASES, IF THE MANEUVER IS A ROLL, ROLLFLAG WILL BE ON. IF THERE IS NO
R0968 MANEUVER REQUIRED, (VEHICLE LESS THAN ABOUT 3 DEGS AWAY FROM DESIRED ATTITUDE), CALCFLAG WILL BE OFF.
R09682 OTHERWISE, CALCFLAG IS ON. CALCMANU PRESUMES THAT INITIAL CONDITIONS AND FINAL CONDITIONS ARE NOT IN GIMBAL LOCK
0970 26,6000 SETLOC 54000
0971 26,6000 77576 0 CALCMANU EXIT 0

0972 REF 4 LAST 619 26,6001 0 3440 1 TC FLAG2UP
0973 26,6002 12000 1 OCT 12000 SET BACKFLAG, CALCFLAG

0974 REF 6 LAST 620 26,6003 0 3452 1 TC FLAG2DWN
0975 26,6004 04600 0 OCT 04600 REMOVE ROLLFLAG ,NEGFLAG,BEGINFLG

0976 REF 82 LAST 646 26,6005 0 4000 0 TC INTPRET

0977 26,6006 75575 1 AXT,1 1
0978 26,6007 45572 0 ITA ITC
0979 26,6010 00007 0 6
0980 REF 1 26,6011 01472 1 EXITCADR
0981 REF 3 LAST 638 26,6012 12013 0 THETRIG

0982 26,6013 76776 0 ITC 0
0983 REF 3 LAST 604 26,6014 12110 1 CALCSMNB COMPUTE X,Y,ZNB

0984 26,6015 76776 0 ITC 0
0985 REF 3 LAST 620 26,6016 12213 1 CALCNBSC COMPUTE X,Y,ZSC

0986 26,6017 74575 0 AXT,2 1
0987 26,6020 76576 1 RTB SET X2 TO 0
0988 26,6021 00001 0 0
0989 REF 11 LAST 646 26,6022 20265 1 FRESHPD SET PD POINTER TO 0

0990 26,6023 42774 0 DOT 2
0991 26,6024 65132 1 ABS DSU
0992 26,6025 43776 0 BPL
0993 REF 8 LAST 652 26,6026 01367 1 XSC
0994 REF 10 LAST 633 26,6027 01411 1 XSCD
0995 REF 1 26,6030 15655 0 COSSIX
0996 REF 1 26,6031 14102 1 180/ZERO

0997 26,6032 41775 1 NOT179 VXV 1
0998 26,6033 73176 0 UNIT
0999 REF 9 LAST 657 26,6034 01367 1 XSC
1000 REF 11 LAST 657 26,6035 01411 1 XSCD
1001 REF 2 LAST 603 26,6036 33323 0 STORE WC

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1002			26,6037	65175 1	ACCEPTWC ABS	1	
1003			26,6040	66616 0	DSJ	BPL	
1004	REF	3 LAST 657	26,6041	01325 1		WC +2	
1005	REF	1	26,6042	15543 1		COS27	IF WC IS 27 OR LESS DEGS AWAY FROM
1006	REF	1	26,6043	15520 1		GETPTCH	+,- YSM, GIMBAL LOCK IS IMPOSSIBLE
1007			26,6044	41775 1	VXV	1	PITCH/YAW MAY CAUSE GIMBAL LOCK. VARIOUS
1008			26,6045	41753 0	VXV	UNIT	TESTS MUST BE MADE
1009	REF	4 LAST 658	26,6046	01323 1		WC	
1010	REF	3 LAST 372	26,6047	15601 1		UNITY	MP IS POINT OF CLOSEST APPROACH TO +YSM
1011	REF	5 LAST 658	26,6050	01323 1		WC	MP TO PD AT 0
10111			26,6051	45176 0			
10112	REF	3 LAST 645	26,6052	15575 1	DMOVE	0	
10113			26,6053	32020 1	STORE	15D	
1012			26,6054	47575 0			
1013			26,6055	41776 1	NOLOD	1	
1014	REF	12 LAST 657	26,6056	01411 1	VXV	XSCD	MP*XSCD TO PD AT 6
1015			26,6057	41775 1			
1016			26,6060	42616 0	DOT	BPL	
1017			26,6061	00001 0		0	
1018	REF	10 LAST 657	26,6062	01367 1		XSC	
1019			26,6063	77777 0		-	
1020	REF	1	26,6064	14351 0		BEGINARC	BRANCH TO BEGINARC IF ARC FROM XSC TO XSCD DOES NOT INCLUDE MP OR -MP
1021			26,6065	50775 1			
1022			26,6066	42616 0	VAD	1	
1023	REF	11 LAST 658	26,6067	01367 1	DOT	BPL	
1024	REF	13 LAST 658	26,6070	01411 1		XSC	
1025			26,6071	00001 0		XSCD	
1026	REF	1	26,6072	14076 0		0	
						PLUSPOLE	
1027			26,6073	42576 0			
1028	REF	1	26,6074	00050 1	SWITCH	0	
						NEGFLAG	-MP IS ON ARC
1029			26,6075	76776 0	PLUSPOLE	ITC	0
1030	REF	1	26,6076	14201 1			NORMLIMS
1031			26,6077	76776 0			
1032	REF	1	26,6100	14316 0	ITC	0	FILENORM
1033			26,6101	42775 1	180/ZERO	DOT	1
1034			26,6102	73776 0		BMN	
1035	REF	12 LAST 658	26,6103	01367 1		XSC	
1036	REF	14 LAST 658	26,6104	01411 1		XSCD	
1037	REF	1	26,6105	15351 1		180CASE	
10371			26,6106	47575 0	NOLOD	1	

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10372			26,6107	66756 0	DSJ	BMN	
10373	REF	1	26,6110	15541 0		COS3	
10374	REF	1	26,6111	15401 0		NOGIMTST	
1038			26,6112	42773 1	DOT	3	
10382			26,6113	75622 0	VXSC	VSLT	
10384			26,6114	74633 1	VSJ	COMP	
10386			26,6115	73012 0	UNIT	DOT	
10388	REF	8 LAST 633	26,6116	01425 0		ZSCD	
1039	REF	13 LAST 658	26,6117	01367 1		XSC	
10392	REF	14 LAST 659	26,6120	01367 1		XSC	
10394			26,6121	00003 1		2	
10396	REF	9 LAST 659	26,6122	01425 0		ZSCD	
1040	REF	5 LAST 652	26,6123	01403 1		ZSC	COSROLL TO PD AT 0 SCALED AT 2(2)
1041			26,6124	47575 0	NOLOD	1	
1042			26,6125	66616 0	DSJ	BPL	
1043	REF	2 LAST 657	26,6126	15655 0		COSSIX	
1044	REF	1	26,6127	14171 0		CALCSNAP	
1045			26,6130	41775 1	VXV	1	ROLL IS REQUIRED
1046			26,6131	42776 1	DOT		
1047	REF	6 LAST 659	26,6132	01403 1		ZSC	
1048	REF	10 LAST 659	26,6133	01425 0		ZSCD	
1049	REF	15 LAST 659	26,6134	01367 1		XSC	XSC.(ZSC*ZSCD) TO PD AT 2
1050			26,6135	63775 1	TSLT	1	
1051			26,6136	61056 0	ACOS	SIGN	
1052			26,6137	00001 0		0	
1053			26,6140	00002 0		1	
1054	REF	4 LAST 603	26,6141	33455 0	STORE	THETAMAN	
1055			26,6142	65174 0	ABS	2	
1056			26,6143	66756 0	DSJ	BMN	
1057			26,6144	76776 0	ITC		
1058	REF	16 LAST 659	26,6145	01371 0		XSC +2	
1059	REF	1	26,6146	15545 1		COS63	
1060	REF	1	26,6147	14152 1		NOTEST	
1061	REF	1	26,6150	15240 0		ROLLTEST	SHORT ROLL MAY GO THROUGH GIMBAL LOCK
1062			26,6151	53775 1	NOTEST	SIGN	
1063			26,6152	75776 0		VXSC	
1064	REF	3 LAST 652	26,6153	21043 0		NEARONE	
1065	REF	5 LAST 659	26,6154	01455 1		THETAMAN	
1066	REF	17 LAST 659	26,6155	01367 1		XSC	
1067	REF	6 LAST 658	26,6156	33323 0	STORE	WC	
1068			26,6157	65176 1	ABS	0	THETAMAN MUST BE +VE FOR MANUJOB
1069	REF	6 LAST 659	26,6160	01455 1		THETAMAN	
1070	REF	7 LAST 659	26,6161	33455 0	STORE	THETAMAN	

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1071			26,6162	77576 0	EXIT	0	
1072	REF	5 LAST 657	26,6163	0 3440 1	TC	FLAG2UP	
1073			26,6164	04000 0	OCT	04000	SET ROLLFLAG
1074	REF	83 LAST 657	26,6165	0 4000 0	TC	INTPRET	
1075			26,6166	44576 0	ITCI	0	
1076	REF	2 LAST 657	26,6167	01472 1		EXITCADR	EXIT ON THE ROLL WHEN PITCH/YAW IS OVER
1077			26,6170	42575 0	CALCSNAP	SWITCH 1	WE ARE THERE
1078			26,6171	76776 0	ITC		
1079	REF	2 LAST 601	26,6172	00046 0		CALCFLAG	REMOVE CALCFLAG
1080	REF	2 LAST 558	26,6173	12167 1		CALCSCNB	
1081			26,6174	76776 0	ITC	0	
1082	REF	2 LAST 558	26,6175	12072 1		CALCCDU	SET THETAD,S TO CORRECT VALUES
1083			26,6176	44576 0	ITCI	0	
1084	REF	3 LAST 660	26,6177	01472 1		EXITCADR	THIS IS THE LAST EXIT FROM CALCMANU
1085			26,6200	45574 0	NORMLIMS	ITA 2	
1086			26,6201	76455 1		RTB AXC,1	SET PD TO 18
1087			26,6202	65103 0		ABS ACOS	
10875	REF	8 LAST 659	26,6203	01455 1		THETAMAN	(TEMPORARY STORAGE)
1088	REF	1	26,6204	15645 1		SETPD18	
1089			26,6205	00003 1		2	-2 TO X1
1090			26,6206	00003 1		2	C TO 18
1091			26,6207	47575 0	BACKLIM	NOLOD 1	
1092			26,6210	65776 1		BDSU	
1093	REF	1	26,6211	15557 1		30DEG	30-C TO 20 AT 4PI
1094			26,6212	55176 1		COS 0	
1095			26,6213	00025 0		20D	COS(30-C) TO PD AT 22
1097			26,6214	57174 1		SIN 2	
1098			26,6215	62722 1		DDV DMP	
1099			26,6216	61072 0		ACOS TSRT	
1100			26,6217	00025 0		20D	
1101			26,6220	77777 0		-	(1/TAN33 SCALED AT 2(1))
1102	REF	1	26,6221	15551 1		1/TAN33	OKA TO 22 AT 4PI
1103			26,6222	00002 0		1	
1104			26,6223	45176 0		DMOVE 0	
1105	REF	1	26,6224	15563 0		90DEG	90 DEGREES TO 24
1106			26,6225	43176 0		SMOVE 0	
1107	REF	8 LAST 379	26,6226	00047 1		X1	X1 TO 26

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1108			26,6227	45174 1	DMOVE	2	
1109			26,6230	47056 1	COMP	SIGN	
1110			26,6231	70633 0	DAD	COMP	
1111	REF	2 LAST 660	26,6232	15563 0		90DEG	-180 IF X1=-2, 0 IF X1=0, TO 24
1114			26,6233	45175 0	DMOVE	1	
1115			26,6234	43433 1	TEST	COMP	2 90DEG SCALED AT 4PI
1116	REF	3 LAST 661	26,6235	15563 0		90DEG	
1117	REF	2 LAST 658	26,6236	00050 1		NEGFLAG	
1118	REF	1	26,6237	14242 0		POSPOLE	
1119			26,6240	32033 0	STORE	26D	
A1120							+90 IN MPAC IF FLAG=0
A1121							-90 IN MPAC IF FLAG=1
1122			26,6241	47575 0	POSPOLE	NOLOD	1
1123			26,6242	53776 1	SIGN		
1124	REF	7 LAST 659	26,6243	01325 1		WC +2	
A1125							+90 IN 24 IF
A1126							A) FLAG=0, WC +2 POS
A1127							B) FLAG=1, WC +2 NEG
A1128							-90 IN 24 IF
A1129							A) FLAG=0, WC +2 NEG
A1130							B) FLAG=1, WC +2 POS
1131			26,6244	47575 0	NOLOD	1	
1132			26,6245	66776 1	DSJ		
1133			26,6246	00031 0		24D	180J-90SIGMIM TO 28
1134			26,6247	43175 0	SMOVE	1	
1135			26,6250	47776 1	BZE		
1136	REF	9 LAST 660	26,6251	00047 1		X1	
1137	REF	1	26,6252	14300 1		CNEGLIMS	TO CNEGLIMS IF X1 IS ZERO
1138			26,6253	66776 1	DSJ	0	
1139			26,6254	00035 1		28D	
1140			26,6255	00027 1		22D	
1141			26,6256	32007 1	STORE	6	NBL1 TO 6, SCALED AT 4PI
1142			26,6257	70776 0	DAD	0	
1143			26,6260	00027 1		22D	
1144			26,6261	32010 1	STORE	7	NEL1 TO 7
1145			26,6262	66775 1	DSJ	1	
1146			26,6263	43776 0	BPL		
1147			26,6264	00023 0		18D	
1148	REF	1	26,6265	15561 1		3DEG	
1149	REF	1	26,6266	14314 1		ENDNORMS	
1150			26,6267	75575 1	AXT,1	1	
1151			26,6270	76433 1	RTB	COMP	

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1152		26,6271	00001 0		0	SET X1 TO 0
1153	REF 1	26,6272	15651 1		SETPD20	
1154		26,6273	00023 0		18D	COMPLEMENT C
11545		26,6274	32023 1	STORE	18D	
1155		26,6275	76776 0	ITC	0	
1156	REF 1	26,6276	14210 1		BACKLIM	BACKLIMITS EXIST IF C LESS THAN 3
1157		26,6277	66776 1	CNEGLIMS DSJ	0	
1158		26,6300	00035 1		28D	
1159		26,6301	00027 1		22D	
1160		26,6302	32011 0	STORE	8D	NBLO TO 8
1161		26,6303	70774 1	DAD	2	
1162		26,6304	73535 0	LXA,1	SXA,1	
1163		26,6305	75576 1	AXT,1		
1164		26,6306	00035 1		28D	
1165		26,6307	00027 1		22D	
1166	REF 475 LAST 623	26,6310	00116 1		MPAC	
1167		26,6311	00012 1		9D	NELO TO 9, PROTECTING 10
1168		26,6312	00001 0		0	RESET X1 TO 0
1169		26,6313	44576 0	ENDNORMS ITCI	0	END OF NORMLIMS CALCULATIONS
1170	REF 9 LAST 660	26,6314	01455 1		THETAMAN	END OF NORMLIMS CALCS
1171		26,6315	43176 0	FILENORM SMOVE	0	
1172		26,6316	00007 0		6D	6 INTO 10 IF X1=0 ,OR
1173		26,6317	34025 1	STORE	10D,1	6 INTO 12 IF X1=-2
1174		26,6320	43175 0	SMOVE	1	7 INTO 11 IF X1=0 , OR
1175		26,6321	62576 1	INCR,2		7 INTO 13 IF X1=-2
1176		26,6322	00010 0		7	
1177		26,6323	77776 1	-	2	MOVE LIMIT LIST POINTER BY -2 (TO -2)
1178		26,6324	34027 0	STORE	11D,1	
1179		26,6325	43175 0	SMOVE	1	
1180		26,6326	73611 0	BMN	SWITCH	
1181	REF 10 LAST 661	26,6327	00047 1		X1	
1182	REF 1	26,6330	14341 1		SET15D	
1183	REF 1	26,6331	00044 1		BACKFLAG	SET BACKFLAG
1184		26,6332	43176 0	SMOVE	0	
1185		26,6333	00011 1		8D	
1186		26,6334	32015 1	STORE	12D	8 INTO 12 IF X1=0
1187		26,6335	43176 0	SMOVE	0	
1188		26,6336	00012 1		9D	
1189		26,6337	32016 1	STORE	13D	9 INTO 13 IF X1=0
11892		26,6340	45175 0	SET15D DMOVE	1	

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11893			26,6341	43433 1	TEST	COMP	
11894	REF	3 LAST 372	26,6342	15573 1		UNITX	
11895	REF	3 LAST 661	26,6343	00050 1		NEGFLAG	
11896	REF	1	26,6344	14347 1		PLUSMP	
11897			26,6345	32020 1	STORE	15D	
11898			26,6346	47576 0	PLUSMP	NOLOD 0	
11899			26,6347	32020 1	STORE	15D	
1190			26,6350	75575 1	BEGINARC	AXT,1 1	
1191			26,6351	42576 0	SWITCH		SET X1 TO 0
1192			26,6352	00001 0		0	
1193	REF	1	26,6353	00051 0		BEGINFLG	SET BEGINFLG
1194			26,6354	76575 1	ENDCHEK	RTB 1	
1195			26,6355	77576 0	EXIT		
1196	REF	2 LAST 660	26,6356	15645 1		SETPD18	
1197	REF	7 LAST 657	26,6357	0 3452 1	TC	FLAG2DWN	
1198			26,6360	00400 0	OCT	00400	REMOVE NEGFLAG
1199	REF	84 LAST 660	26,6361	0 4000 0	TC	INTPRET	
1200			26,6362	64175 0	ABS*	1	
1201			26,6363	65616 0	BDSU	BPL	
1202	REF	18 LAST 659	26,6364	02761 0		XSC +2,1	
1203	REF	2 LAST 659	26,6365	15545 1		COS63	IS END CLOSE TO A POLE Q.
1204	REF	1	26,6366	14714 0		OVERYET	BRANCH TO OVERYET IF NOT
1205			26,6367	43575 1	SETWARN	TEST 1	
1206			26,6370	42576 0	SWITCH		
1207	REF	2 LAST 663	26,6371	00051 0		BEGINFLG	
1208	REF	1	26,6372	14375 0		DONTSET	SET ROLLFLAG IF BEGINNING OF ARC NEAR
1209	REF	2 LAST 601	26,6373	00045 0		ROLLFLAG	LOCK
1210			26,6374	44175 1	DONTSET	DMOVE* 1	
1211			26,6375	43611 0	BPL	SWITCH	
1212	REF	19 LAST 663	26,6376	02761 0		XSC +2,1	
1213	REF	1	26,6377	14402 1		POSPOLE1	IF XSC +2,1 NEG, SET NEGFLAG
1214	REF	4 LAST 663	26,6400	00050 1		NEGFLAG	
1228			26,6401	43174 1	POSPOLE1	SMOVE 2	
1229			26,6402	43556 0	TEST	BMN	
1230			26,6403	76776 0	ITC		
1231			26,6404	00020 0		15D	
1232	REF	5 LAST 663	26,6405	00050 1		NEGFLAG	
1233	REF	1	26,6406	14412 0		NEAR+MP	
1234	REF	2 LAST 663	26,6407	14714 0		OVERYET	
1235	REF	1	26,6410	14416 1		F2	

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1236			26,6411	47575 0	NEAR+MP	NOLOD	1
1237			26,6412	47616 0		BZE	BPL
1238	REF	2 LAST 663	26,6413	14416 1			F2
1239	REF	3 LAST 663	26,6414	14714 0			OVERYET
1240			26,6415	42776 1	F2	DOT	0
12401	REF	15 LAST 658	26,6416	01411 1			XSCD
12402			26,6417	00001 0			0
12403			26,6420	42774 0		DOT	2
12404			26,6421	66615 0		DSJ	TEST
12405			26,6422	47176 1		COMP	
12406	REF	20 LAST 663	26,6423	01367 1			XSC
12407			26,6424	00001 0			0
12408			26,6425	77777 0			-
12409	REF	6 LAST 663	26,6426	00050 1			NEGFLAG
1241	REF	1	26,6427	14432 1			BEGIN1
12411	REF	1	26,6430	33433 0		STORE	DTEMP1
12412			26,6431	47575 0	BEGIN1	NOLOD	1
12413			26,6432	43433 1		TEST	COMP
12414	REF	3 LAST 663	26,6433	00051 0			BEGINFLG
1242	REF	1	26,6434	14437 1			BEGIN2
12421	REF	2 LAST 664	26,6435	33433 0		STORE	DTEMP1
1243			26,6436	47575 0	BEGIN2	NOLOD	1
12431			26,6437	43776 0		BPL	
12432	REF	4 LAST 664	26,6440	14714 0			OVERYET
1246			26,6441	43174 1	F3	SMOVE	2
1247			26,6442	66615 0		DSJ	TEST
1248			26,6443	47176 1		COMP	
1249	REF	7 LAST 650	26,6444	00050 1			X2
1250	REF	1	26,6445	15567 1			DP2(-13)
1251	REF	4 LAST 664	26,6446	00051 0			BEGINFLG
1252	REF	1	26,6447	14452 1			F4
1253	REF	17 LAST 630	26,6450	32051 1		STORE	S1
A1254							
A1255							
A1256							
A1257							
A1258							
A1259							
A1260							
A1261							
1262			26,6451	47576 0	F4	NOLOD	0
1263	REF	18 LAST 664	26,6452	32051 1		STORE	S1
12631			26,6453	45175 0		DMOVE	1

SPLITMANU(IF IT HAPPENS) NEEDS TO KNOW
WHICH LIMITS REFER TO THE BEGINNING OF

IF S1=+,-2, THEN THE LIMITS ABOUT TO BE
CALCULATED WILL END UP IN PD AT 0
IF S1=+,-4, THE LIMITS WILL END UP AT
2,4 IN PD
IF S1 IS NEG, THEN THE TAGGED LIMITS
ARE THE ONES NOT TO USE IN SPLTMANU
IF S1 IS POS, THE TAGGED LIMITS SHOULD
BE USED

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12632			26,6454	43433 1	TEST	COMP
12633	REF	4 LAST 663	26,6455	15573 1		UNITX
12634	REF	5 LAST 664	26,6456	00051 0		BEGINFLG
12635	REF	1	26,6457	14462 1		F5
12636	REF	3 LAST 664	26,6460	33433 0	STORE	DTEMP1
12637			26,6461	47575 0 F5	NOLOD	1
12638			26,6462	43433 1	TEST	COMP
12639	REF	7 LAST 664	26,6463	00050 1		NEGFLAG
1264	REF	1	26,6464	14467 1		F6
12641	REF	4 LAST 665	26,6465	33433 0	STORE	DTEMP1
12642			26,6466	47575 0 F6	NOLOD	1
12643			26,6467	53776 1	SIGN	
12644	REF	8 LAST 661	26,6470	01325 1		WC +2
12645	REF	5 LAST 665	26,6471	33433 0	STORE	DTEMP1
12646			26,6472	64176 0	ABS*	0
12647	REF	21 LAST 664	26,6473	02761 0		XSC +2,1
12648			26,6474	56774 0	TSRT	2
1265			26,6475	66711 0	DSU	INCR,2
12655			26,6476	73776 0	BMN	
1267			26,6477	00023 0		18D
1268			26,6500	00002 0		1
1269	REF	2 LAST 659	26,6501	15541 0		COS3
12695			26,6502	77776 1		2
1270	REF	1	26,6503	14511 1		SOMESUN
1271			26,6504	76776 0	ITC	0
12711	REF	2 LAST 658	26,6505	14201 1		NORMLIMS
1272			26,6506	76776 0	ITC	0
1273	REF	1	26,6507	14673 0		ALLSHADE
12731			26,6510	74173 1	SOMESUN	VMOVE* 3
12732			26,6511	41604 0	VXV	VXV*
12733			26,6512	73033 0	UNIT	COMP
12734			26,6513	43433 1	TEST	COMP
12735	REF	22 LAST 665	26,6514	02755 1		XSC,1
12736	REF	4 LAST 658	26,6515	15601 1		UNITY
12737	REF	23 LAST 665	26,6516	02755 1		XSC,1
12738	REF	8 LAST 665	26,6517	00050 1		NEGFLAG
12739	REF	1	26,6520	14523 0		POSP1
1274			26,6521	32025 1	STORE	20D
12741			26,6522	73575 1	LXA,1	1
12742			26,6523	47576 0	NOLOD	
12743	REF	11 LAST 662	26,6524	00047 1		X1

29
COSC TO 18 AT 2(1)

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12745			26,6525	61175 0	ACOS	1	
1275			26,6526	56776 1	TSRT		
1276			26,6527	00023 0		18D	
1277			26,6530	00002 0		1	C/2 TO 26 SCALED AT 2PI
1278			26,6531	47575 0	NOLDD	1	
1279			26,6532	66673 0	DSJ	SIN	
1280	REF	1	26,6533	15553 0		1.5DEG	SIN(C/2-1.5) TO 28
1281			26,6534	66775 1	DSJ	1	
1282			26,6535	57122 1	SIN	DMP	
1283	REF	1	26,6536	15555 0		31.5DEG	
1284			26,6537	00033 1		26D	SIN(C/2-1.5)SIN,31.5-C/2) TO 28
1285			26,6540	70775 0	DAD	1	
1286			26,6541	57176 0	SIN		
1287			26,6542	00033 1		26D	SIN(C/2+1.5) TO PD AT 30
1288	REF	2 LAST 666	26,6543	15553 0		1.5DEG	
1289			26,6544	70774 1	DAD	2	
1290			26,6545	57122 1	SIN	DMP	
1291			26,6546	61653 0	BDDV	SQRT	
1292			26,6547	00033 1		26D	
1293	REF	2 LAST 666	26,6550	15555 0		31.5DEG	
1294	REF	4 LAST 384	26,6551	32045 1	STORE	VACZ	
1295			26,6552	45176 0	DMOVE	0	
1296	REF	4 LAST 659	26,6553	21043 0		NEARONE	
1297	REF	3 LAST 383	26,6554	32041 0	STORE	VACX	
1298			26,6555	76575 1	RTB	1	PD SET TO AVOID CONFLICT WITH ARCTAN
1299			26,6556	76526 1	RTB	BDSU	
1300	REF	1	26,6557	15643 1		SETPD6	
1301	REF	1	26,6560	20504 1		ARCTAN	
1302	REF	3 LAST 649	26,6561	15565 0		DP2(-2)	
1303			26,6562	32033 0	STORE	26D	SA AT 26 SCALED AT 4PI
1304			26,6563	42776 1	DOT	0	
1305	REF	9 LAST 665	26,6564	01323 1		WC	
1306			26,6565	00025 0		20D	TO PD TO SIGN AR IN NEXT EQUATION
1308			26,6566	74172 0	VMOVE*	4	
1309			26,6567	41753 0	VXV	UNIT	
1310			26,6570	42633 1	DOT	COMP	
1311			26,6571	63703 0	TSLT	ACOS	
1312			26,6572	56656 1	TSRT	SIGN	
1313	REF	24 LAST 665	26,6573	02755 1		XSC,1	POINT.UNIT(WC*XSC,1)
1314	REF	10 LAST 666	26,6574	01323 1		WC	
1315			26,6575	00025 0		20D	
1316			26,6576	00002 0		1	

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1318		26,6577	00002 0		1	AR TO THETAMAN, SCALED AT 4PI
1319	REF 10 LAST 662	26,6600	33455 0	STORE	THETAMAN	
1320		26,6601	66776 1	DSJ	0	
1321	REF 11 LAST 667	26,6602	01455 1		THETAMAN	
1322		26,6603	00033 1		26D	
1323		26,6604	34026 1	STORE	10D,2	AR-SA
1324		26,6605	76575 1	RTB	1	
1325		26,6606	70776 0	DAD		
1326	REF 1	26,6607	15647 0		SETPD28	
1327	REF 12 LAST 667	26,6610	01455 1		THETAMAN	
1328		26,6611	34030 0	STORE	11D,2	AR+SA
1329		26,6612	74175 1	VMOVE*	1	
1330		26,6613	42723 1	DOT	ABS	
1331	REF 25 LAST 666	26,6614	02755 1		XSC,1	ABS(XSC,1,MP) TO 26 AT 2(2)
1332		26,6615	00001 0		0	
1333		26,6616	65175 1	ABS	1	
1334		26,6617	61176 0	ACOS		
1335		26,6620	00003 1		2	ACOS(ABS(MP,UNITY)) TO 28
1336		26,6621	47574 1	NOLOD	2	
1337		26,6622	70663 0	DAD	COS	
1338		26,6623	64716 0	DMP	TSLT	
1339	REF 2 LAST 660	26,6624	15557 1		30DEG	
1340		26,6625	00033 1		26D	
1341		26,6626	00002 0		1	
1342		26,6627	32021 0	STORE	16D	COSB TO 16 AT 2(2)
1343		26,6630	66773 1	DSJ	3	
1344		26,6631	65063 1	ABS	COS	
1345		26,6632	64716 0	DMP	TSLT	
1346		26,6633	65616 0	BDSU	BPL	
1347	REF 3 LAST 667	26,6634	15557 1		30DEG	
1348		26,6635	77777 0		-	
1349		26,6636	77777 0		-	
1350		26,6637	00002 0		1	
1351	REF 1	26,6640	15571 0		C33	
1352	REF 5 LAST 664	26,6641	14714 0		OVERYET	IF C33-COSA POS
1364		26,6642	76776 0	ITC	0	
1365	REF 3 LAST 665	26,6643	14201 1		NORMLIMS	
1372		26,6644	66775 1	DSJ	1	
1373		26,6645	73776 0	BMN		
1374	REF 2 LAST 667	26,6646	15571 0		C33	
1375		26,6647	00021 1		16D	
1376	REF 2 LAST 665	26,6650	14673 0		ALLSHADE	

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1377			26,6651	44176 1		DMOVE*	0	
1378			26,6652	00030 1			11D,2	11D,2 TO PD FOR PROTECTION
1381			26,6653	43776 0		BPL	0	
1382	REF	6 LAST 665	26,6654	01433 1			DTEMP1	
1383	REF	1	26,6655	14666 1			11MANU	
1384			26,6656	43176 0		SMOVE	0	
1385			26,6657	00007 0			6	NBL1 REPLACES AR-SA
1386			26,6660	34026 1		STORE	10D,2	
1387			26,6661	45176 0		DMOVE	0	
1388			26,6662	34030 0		STORE	11D,2	NOW REINSERT 11,2
1389			26,6663	76776 0		ITC	0	
1390	REF	6 LAST 667	26,6664	14714 0			OVERYET	
1391			26,6665	43176 0	11MANU	SMOVE	0	
1392			26,6666	00010 0			7	
1393			26,6667	34030 0		STORE	11D,2	
1394			26,6670	76776 0		ITC	0	
1395	REF	7 LAST 668	26,6671	14714 0			OVERYET	
1396			26,6672	43775 0	ALLSHADE	BPL	1	
1397			26,6673	41423 1		LODON	DMOVE	
1398	REF	7 LAST 668	26,6674	01433 1			DTEMP1	
1400	REF	1	26,6675	14706 0			12MANU	
1401			26,6676	00007 0			6	
1402			26,6677	34026 1		STORE	10D,2	
1403			26,6700	43176 0		SMOVE	0	
1404			26,6701	00012 1			9D	
1405			26,6702	34030 0		STORE	11D,2	
1406			26,6703	76776 0		ITC	0	
1407	REF	8 LAST 668	26,6704	14714 0			OVERYET	
1408			26,6705	43176 0	12MANU	SMOVE	0	
1409			26,6706	00011 1			8D	
1410			26,6707	34026 1		STORE	10D,2	
1411			26,6710	43176 0		SMOVE	0	
1412			26,6711	00010 0			7	
1413			26,6712	34030 0		STORE	11D,2	
14131			26,6713	43175 0	OVERYET	SMOVE	1	
14132			26,6714	70636 0		DAD	BZE	
14133	REF	8 LAST 664	26,6715	00050 1			X2	
14134	REF	2 LAST 643	26,6716	13141 1			DP2(-12)	

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14136	REF	1	26,6717	14731	1	FINISHUP	
1414			26,6720	43574	0	TEST	2
1415			26,6721	53411	0	AXC,1	SWITCH
1416			26,6722	76776	0	ITC	
1417	REF	6 LAST 665	26,6723	00051	0	BEGINFLG	
1418	REF	2 LAST 669	26,6724	14731	1	FINISHUP	
1419			26,6725	00023	0	18D	-18 TO X1
1420	REF	7 LAST 669	26,6726	00051	0	BEGINFLG	REMOVE BEGINFLG
1421	REF	1	26,6727	14355	1	ENDCHEK	GO BACK, GET LIMITS FOR END OF ARC
1422			26,6730	43175	0	FINISHUP SMOVE	1
1423			26,6731	47776	1	BZE	
1424	REF	9 LAST 668	26,6732	00050	1	X2	
1425	REF	2 LAST 658	26,6733	15520	1	GETPTCH	NO LIMITS DETECTED
1426			26,6734	76575	1	RTB	1
1427			26,6735	41776	1	VXV	
1428	REF	2 LAST 662	26,6736	15651	1	SETPD20	
1429	REF	12 LAST 634	26,6737	01477	1	XNB	
1430	REF	26 LAST 667	26,6740	01367	1	XSC	XNB*XSC TO PD AT 20
1431			26,6741	41775	1	VXV	1
1432			26,6742	42776	1	DOT	
1433	REF	11 LAST 666	26,6743	01323	1	WC	
1434	REF	27 LAST 669	26,6744	01367	1	XSC	
1435			26,6745	00025	0	20D	
1436			26,6746	32023	1	STORE	18D (WC*XSC).(XNB*XSC) TO 18
1437			26,6747	73173	0	UNIT	3
1438			26,6750	42633	1	DOT	COMP
1439			26,6751	63703	0	TSLT	ACOS
1440			26,6752	53672	1	SIGN	TSRT
1441			26,6753	77777	0	-	
1442	REF	12 LAST 669	26,6754	01323	1	WC	
1443			26,6755	00002	0	1	
1444			26,6756	77777	0	-	
1445			26,6757	00002	0	1	
1446			26,6760	34032	1	STORE	12D,2 SCALED AT 4PI
1447			26,6761	43175	0	SMOVE	1
1448			26,6762	52565	0	AXC,2	AXT,1
1449	REF	10 LAST 669	26,6763	00050	1	X2	
1450			26,6764	00001	0	0	
1451			26,6765	00001	0	0	0 INTO X2 AND X1
1452			26,6766	32037	1	STORE	30D SAVE X2
1453			26,6767	42175	1	22MANU SMOVE*	1
1454			26,6770	66776	1	DSJ	
1455			26,6771	00034	0		13D,2

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1456			26,6772	00015 0		12D
1457			26,6773	47575 0	23MANU	NOLDD 1
1458			26,6774	66616 0		DSJ BPL
1459	REF	1	26,6775	15573 1		360DEG
1460	REF	1	26,6776	14774 0		23MANU
1461			26,6777	47575 0	20MANU	NOLDD 1
1462			26,7000	70756 1		DAD BMN
1463	REF	2 LAST 670	26,7001	15573 1		360DEG
1464	REF	1	26,7002	15000 0		20MANU
1465			26,7003	34001 1		STORE 0,1
1466			26,7004	73575 1		LXA,1 1
1467			26,7005	62515 1		INCR,2 INCR,1
1468	REF	12 LAST 665	26,7006	00047 1		X1
1469			26,7007	77777 0	-	1
1470			26,7010	77776 1	-	2
1471			26,7011	43175 0		SMOVE 1
1472			26,7012	65756 0		BDSU BMN
1473	REF	11 LAST 669	26,7013	00050 1		X2
1474			26,7014	00037 0		30D
1475	REF	1	26,7015	14770 1		22MANU
1476			26,7016	70775 0		DAD 1
1477			26,7017	47776 1		BZE
1478			26,7020	00037 0		30D
1479	REF	2 LAST 664	26,7021	15567 1		DP2(-13)
1480	REF	1	26,7022	15333 0		EZCASE
1481			26,7023	66775 1		DSJ 1
1482			26,7024	73776 0		BMN
1483			26,7025	00005 1		4
1484			26,7026	00001 0		0
1485	REF	1	26,7027	15106 1		30MANU
1486			26,7030	66775 1		DSJ 1
1487			26,7031	73776 0		BMN
1488			26,7032	00003 1		2
1489			26,7033	00001 0		0
1490	REF	1	26,7034	15061 1		31MANU
1491			26,7035	66775 1		DSJ 1
1492			26,7036	73776 0		BMN
1493			26,7037	00003 1		2
1494			26,7040	00005 1		4
1495	REF	1	26,7041	15434 0		SPLITMNU
1496			26,7042	66775 1		DSJ 1

L POWERED FLIGHT SUBROUTINES

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1497			26,7043	73776 0	BMN	
1498			26,7044	00007 0		6
1499			26,7045	00001 0		0
1500	REF	3 LAST 669	26,7046	15520 1		GETPTCH
1501			26,7047	43574 0	TEST	2
1502			26,7050	56732 1	TSRT	DSU
1503			26,7051	76776 0	ITC	
1504	REF	2 LAST 662	26,7052	00044 1		BACKFLAG (BACKFLAG DOWN MEANS DO BACKTEST)
1505	REF	1	26,7053	15317 0		BACKTEST
1506			26,7054	00001 0		0
1507			26,7055	00002 0		1
1508			26,7056	00007 0		6
1509	REF	1	26,7057	15204 0		40MANU
1510			26,7060	66775 1	31MANU DSJ	1
1511			26,7061	73776 0	BMN	
1512			26,7062	00007 0		6
1513			26,7063	00001 0		0
1514	REF	1	26,7064	15100 1		33MANU
1515			26,7065	43574 0	333MANU TEST	2
1516			26,7066	70672 0	DAD	TSRT
1517			26,7067	66772 0	DSJ	ITC
1518	REF	3 LAST 671	26,7070	00044 1		BACKFLAG
1519	REF	2 LAST 671	26,7071	15317 0		BACKTEST
1520			26,7072	00001 0		0
1521			26,7073	00003 1		2
1522			26,7074	00002 0		1
1523			26,7075	00007 0		6
1524	REF	2 LAST 671	26,7076	15204 0		40MANU
1525			26,7077	66775 1	33MANU DSJ	1
1526			26,7100	73772 1	BMN	ITC
1527			26,7101	00007 0		6
1528			26,7102	00003 1		2
1529	REF	1	26,7103	15066 0		333MANU
1530	REF	4 LAST 671	26,7104	15520 1		GETPTCH
1531			26,7105	66775 1	30MANU DSJ	1
1532			26,7106	73776 0	BMN	
1533			26,7107	00003 1		2
1534			26,7110	00001 0		0
1535	REF	1	26,7111	15131 0		35MANU
1536			26,7112	66775 1	DSJ	1
1537			26,7113	73776 0	BMN	
1538			26,7114	00007 0		6
1539			26,7115	00005 1		4
1540	REF	5 LAST 671	26,7116	15520 1		GETPTCH

L POWERED FLIGHT SUBROUTINES

USER'S OWN PAGE NO. 45

1541			26,7117	43574 0	38MANU	TEST	2
1542			26,7120	56732 1		TSRT	DSU
1543			26,7121	76776 0		ITC	
1544	REF	4 LAST 671	26,7122	00044 1			BACKFLAG
1545	REF	3 LAST 671	26,7123	15317 0			BACKTEST
1546			26,7124	00005 1			4
1547			26,7125	00002 0			1
1548			26,7126	00007 0			6
1549	REF	3 LAST 671	26,7127	15204 0			40MANU
1550			26,7130	66775 1	35MANU	DSU	1
1551			26,7131	73776 0		BMN	
1552			26,7132	00003 1			2
1553			26,7133	00005 1			4
1554	REF	1	26,7134	15151 0			36MANU
1555			26,7135	66775 1		DSU	1
1556			26,7136	73776 0		BMN	
1557			26,7137	00007 0			6
1558			26,7140	00003 1			2
1559	REF	1	26,7141	15170 0			37MANU
1560			26,7142	66775 1		DSU	1
1561			26,7143	43772 1		BPL	ITC
1562			26,7144	00007 0			6
1563			26,7145	00001 0			0
1564	REF	1	26,7146	15120 0			38MANU
1566	REF	6 LAST 671	26,7147	15520 1			GETPTCH
1567			26,7150	66775 1	36MANU	DSU	1
15671			26,7151	73776 0		BMN	
15672			26,7152	00007 0			6
15673			26,7153	00005 1			4
15674	REF	1	26,7154	15176 0			366MANU
15675			26,7155	43574 0	368MANU	TEST	2
1568			26,7156	70672 0		DAD	TSRT
1569			26,7157	66772 0		DSU	ITC
1570	REF	5 LAST 672	26,7160	00044 1			BACKFLAG
1571	REF	4 LAST 672	26,7161	15317 0			BACKTEST
1572			26,7162	00005 1			4
1573			26,7163	00003 1			2
1574			26,7164	00002 0			1
1575			26,7165	00007 0			6
1576	REF	4 LAST 672	26,7166	15204 0			40MANU
1577			26,7167	66775 1	37MANU	DSU	1
1578			26,7170	73772 1		BMN	ITC
1579			26,7171	00007 0			6
1580			26,7172	00005 1			4

L POWERED FLIGHT SUBROUTINES

USER'S OWN PAGE NO. 46

1581	REF	7 LAST 672	26,7173	15520 1		GETPTCH
1582	REF	2 LAST 672	26,7174	15120 0		38MANU
1583			26,7175	66775 1	366MANU	DSJ 1
1584			26,7176	73772 1		BMN ITC
1585			26,7177	00007 0		6
1586			26,7200	00003 1		2
1587	REF	1	26,7201	15156 1		368MANU
1588	REF	8 LAST 673	26,7202	15520 1		GETPTCH
1591			26,7203	47574 1	40MANU	NOLOD 2
1592			26,7204	66756 0		DSJ BMN
1593			26,7205	66772 0		DSJ ITC
1594	REF	4 LAST 666	26,7206	15565 0		DP2(-2)
1595	REF	1	26,7207	15213 0		41MANU
1596	REF	5 LAST 673	26,7210	15565 0		DP2(-2)
1597	REF	1	26,7211	15225 0		42MANU
1598			26,7212	47574 1	41MANU	NOLOD 2
1599			26,7213	70616 1		DAD BPL
1600			26,7214	70772 1		DAD ITC
1601	REF	3 LAST 670	26,7215	15573 1		360DEG
1602	REF	1	26,7216	15222 1		43MANU
1603	REF	6 LAST 673	26,7217	15565 0		DP2(-2)
1604	REF	2 LAST 673	26,7220	15225 0		42MANU
1605			26,7221	47575 0	43MANU	NOLOD 1
1606			26,7222	66776 1		DSJ
1607	REF	7 LAST 673	26,7223	15565 0		DP2(-2)
1608			26,7224	47575 0	42MANU	NOLOD 1
1609			26,7225	63776 1		TSLT
1610			26,7226	00002 0		1
1611	REF	13 LAST 667	26,7227	33455 0		STORE THETAMAN
1612			26,7230	43576 1		TEST 0
1613	REF	3 LAST 663	26,7231	00045 0		ROLLFLAG
1614	REF	1	26,7232	15657 1		DONE
1615			26,7233	76776 0		ITC 0
1616	REF	2 LAST 659	26,7234	15240 0		ROLLTEST
1617			26,7235	76776 0		ITC 0
1618	REF	2 LAST 673	26,7236	15657 1		DONE
1619			26,7237	76574 0	ROLLTEST	RTB 2
1620			26,7240	41606 1		VXV VXV
1621			26,7241	73176 0		UNIT
1622	REF	12 LAST 657	26,7242	20265 1		FRESHPD
1623	REF	28 LAST 669	26,7243	01367 1		XSC

ROLL IS IN MPAC, MPAC +1, SCALED AT 4PI

ROLL IN THETAMAN, SCALED AT 2PI

IF ROLLFLAG ISNT ON
WE ARE DONE

SHORT WAY ROLL MAY HIT GIMBAL LOCK

L POWERED FLIGHT SUBROUTINES

USER'S OWN PAGE NO. 47

1624	REF	13	LAST	669	26,7244	01477	1		XNB	
1625	REF	29	LAST	673	26,7245	01367	1		XSC	TEMP1 TO DP AT 0
1626					26,7246	53774	0	SIGN	2	
1627					26,7247	75606	0	VXSC	VXV	
1628					26,7250	41753	0	VXV	UNIT	
1629	REF	5	LAST	666	26,7251	21043	0		NEARONE	
1630	REF	30	LAST	674	26,7252	01371	0		XSC +2	
1631	REF	31	LAST	674	26,7253	01367	1		XSC	
1632	REF	5	LAST	665	26,7254	15601	1		UNITY	
1633	REF	32	LAST	674	26,7255	01367	1		XSC	
1634					26,7256	42775	1	DOT	1	
1635					26,7257	63703	0	TSLT	ACOS	
1636					26,7260	00001	0		0	
1637					26,7261	00007	0		6	
1638					26,7262	00002	0		1	
1639					26,7263	32021	0	STORE	16D	
1640					26,7264	65175	1	ABS	1	
1641					26,7265	66756	0	DSJ	BMN	
1642	REF	14	LAST	673	26,7266	01455	1		THETAMAN	
1643					26,7267	00021	1		16D	
1644	REF	1			26,7270	15316	1		ENDTST	
1645					26,7271	75174	1	VMOVE	2	
1646					26,7272	41612	1	VXV	DOT	
16465					26,7273	73776	0	BMN		
1647					26,7274	77777	0		-	
1648					26,7275	77777	0		-	
1649	REF	33	LAST	674	26,7276	01367	1		XSC	
1650	REF	1			26,7277	15310	1		50MANU	
1651					26,7300	45175	0	DMOVE	1	
1652					26,7301	43742	1	BPL	DAD	
1653	REF	15	LAST	674	26,7302	01455	1		THETAMAN	
1654	REF	2	LAST	674	26,7303	15316	1		ENDTST	
1655	REF	6	LAST	674	26,7304	21043	0		NEARONE	
1656	REF	16	LAST	674	26,7305	33455	0	STORE	THETAMAN	
1657					26,7306	40576	1	ITCQ	0	
1658					26,7307	45175	0	50MANU	DMOVE	1
1659					26,7310	73732	0	BMN	DSU	
1660	REF	17	LAST	674	26,7311	01455	1		THETAMAN	
1661	REF	3	LAST	674	26,7312	15316	1		ENDTST	
1662	REF	7	LAST	674	26,7313	21043	0		NEARONE	
1663	REF	18	LAST	674	26,7314	33455	0	STORE	THETAMAN	
1664					26,7315	40576	1	ENDTST	ITCQ	0

L POWERED FLIGHT SUBROUTINES

USER'S OWN PAGE NO. 48

1665			26,7316	72575 0	BACKTEST LXA,2	1	
1666			26,7317	42576 0	SWITCH		
1667			26,7320	00037 0		30D	RESET SAVED X2
1668	REF	6 LAST 672	26,7321	00044 1		BACKFLAG	TURN BACKFLAG ON (DONT DO AGAIN)
1669			26,7322	43176 0	SMOVE	0	
1670			26,7323	00013 0		10D	
1671			26,7324	32015 1	STORE	12D	
1672			26,7325	73575 1	LXA,1	1	
1673			26,7326	67572 0	SXA,1	ITC	
1674			26,7327	00014 1		11D	
1675			26,7330	00016 0		13D	
1677	REF	3 LAST 669	26,7331	14731 1		FINISHUP	
1678			26,7332	66775 1	EZCASE DSJ	1	
1679			26,7333	73776 0	BMN		
1680			26,7334	00003 1		2	
1681			26,7335	00001 0		0	
1682	REF	9 LAST 673	26,7336	15520 1		GETPTCH	NO ROLL REQ,D
1683			26,7337	43574 0	TEST	2	
1684			26,7340	56732 1	TSRT	DSU	
1685			26,7341	76776 0	ITC		
1686	REF	7 LAST 675	26,7342	00044 1		BACKFLAG	
1687	REF	5 LAST 672	26,7343	15317 0		BACKTEST	
1688			26,7344	00001 0		0	
1689			26,7345	00002 0		1	
1690			26,7346	00003 1		2	
1691	REF	5 LAST 672	26,7347	15204 0		40MANU	
16911			26,7350	47575 0	180CASE NOLOD	1	
16912			26,7351	70616 1	DAD	BPL	
16913	REF	1	26,7352	15653 0		COSONE	
16914	REF	1	26,7353	14033 1		NOT179	
1692			26,7354	42774 0	DOT	2	
1693			26,7355	65132 1	ABS	DSU	
1694			26,7356	43776 0	BPL		
1695	REF	34 LAST 674	26,7357	01367 1		XSC	
1696	REF	6 LAST 674	26,7360	15601 1		UNITY	
1697	REF	2 LAST 675	26,7361	15653 0		COSONE	
1698	REF	1	26,7362	15374 0		ZEROWC	
1699			26,7363	41775 1	VXV	1	
1700			26,7364	41753 0	VXV	UNIT	
1701	REF	35 LAST 675	26,7365	01367 1		XSC	
1702	REF	7 LAST 675	26,7366	15601 1		UNITY	
1703	REF	36 LAST 675	26,7367	01367 1		XSC	
1704	REF	13 LAST 669	26,7370	33323 0	STORE	WC	

L POWERED FLIGHT SUBROUTINES

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1705			26,7371	76776 0	ITC	0	
1706	REF	1	26,7372	14040 0		ACCEPTWC	
1707			26,7373	75176 0	ZEROWC	VMOVE	0
1708	REF	7 LAST 659	26,7374	01403 1		ZSC	
1709	REF	14 LAST 675	26,7375	33323 0		STORE	WC
1710			26,7376	76776 0	ITC	0	
1711	REF	2 LAST 676	26,7377	14040 0		ACCEPTWC	
1720			26,7400	41775 1	NOGIMTST	VXV	1
1721			26,7401	73176 0		UNIT	
1722	REF	37 LAST 675	26,7402	01367 1		XSC	
1723	REF	16 LAST 664	26,7403	01411 1		XSCD	
1724	REF	15 LAST 676	26,7404	33323 0		STORE	WC
1725			26,7405	76776 0	ITC	0	
1726	REF	10 LAST 675	26,7406	15520 1		GETPTCH	
1730			26,7407	65175 1	DONE1	ABS	1
1731			26,7410	66756 0		DSJ	BMN
1732	REF	19 LAST 674	26,7411	01455 1			THETAMAN
1733	REF	3 LAST 666	26,7412	15553 0			1.5DEG
1734	REF	11 LAST 676	26,7413	15520 1			GETPTCH
1761			26,7414	53775 1		SIGN	1
1762			26,7415	75776 0		VXSC	
1763	REF	8 LAST 674	26,7416	21043 0			NEARONE
1764	REF	20 LAST 676	26,7417	01455 1			THETAMAN
1765	REF	38 LAST 676	26,7420	01367 1			XSC
1766	REF	16 LAST 676	26,7421	33323 0		STORE	WC
1767			26,7422	65176 1		ABS	0
1768	REF	21 LAST 676	26,7423	01455 1			THETAMAN
1769	REF	22 LAST 676	26,7424	33455 0		STORE	THETAMAN
1770			26,7425	77576 0		EXIT	0
1771	REF	6 LAST 660	26,7426	0 3440 1		TC	FLAG2UP
1772			26,7427	04000 0		OCT	04000
1773	REF	85 LAST 663	26,7430	0 4000 0		TC	INTPRET
1774			26,7431	44576 0		ITCI	0
1775	REF	4 LAST 660	26,7432	01472 1			EXITCADR
1776			26,7433	43173 0	SPLITMNU	SMOVE	3
1777			26,7434	65132 1		ABS	DSU
1778			26,7435	67605 0		BHIZ	LODON
1779			26,7436	43016 1		SMOVE	BPL

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EXIT FOR ROLL THAT AVOIDS GIMBAL LOCK IN
SUBSEQUENT PITCH/YAW MANEUVER

L POWERED FLIGHT SUBROUTINES

USER'S OWN PAGE NO. 50

1780	REF	19 LAST 664	26,7437	00051 0		S1
1781	REF	3 LAST 670	26,7440	15567 1		DP2(-13)
1782	REF	1	26,7441	15502 1		SPLIT1
1783	REF	20 LAST 677	26,7442	00051 0		S1
1784	REF	1	26,7443	15460 1		SPLIT3
1785			26,7444	66775 1	SPLIT2	DSU 1
1786			26,7445	73776 0		BMN
1787			26,7446	00007 0		6
1788			26,7447	00001 0		0
1789	REF	1	26,7450	15507 1		SPLIT5
1790			26,7451	56775 1		TSRT 1
1791			26,7452	66772 0		DSU ITC
1792			26,7453	00001 0		0
1793			26,7454	00002 0		1
1794			26,7455	00007 0		6
1795	REF	6 LAST 675	26,7456	15204 0		40MANU
1796			26,7457	66775 1	SPLIT3	DSU 1
1797			26,7460	43776 0		BPL
1798			26,7461	00007 0		6
1799			26,7462	00005 1		4
1800	REF	1	26,7463	15472 1		SPLIT4
1801			26,7464	66775 1		DSU 1
1802			26,7465	43776 0		BPL
1803			26,7466	00007 0		6
1804			26,7467	00003 1		2
1805	REF	2 LAST 677	26,7470	15507 1		SPLIT5
1806			26,7471	70774 1	SPLIT4	DAD 2
1807			26,7472	56732 1		TSRT DSU
1808			26,7473	76776 0		ITC
1809			26,7474	00003 1		2
1810			26,7475	00005 1		4
1811			26,7476	00002 0		1
1812			26,7477	00007 0		6
1813	REF	7 LAST 677	26,7500	15204 0		40MANU
1814			26,7501	43175 0	SPLIT1	SMOVE 1
1815			26,7502	43772 1		BPL ITC
1816	REF	21 LAST 677	26,7503	00051 0		S1
1817	REF	1	26,7504	15445 0		SPLIT2
1818	REF	2 LAST 677	26,7505	15460 1		SPLIT3
1819			26,7506	76776 0	SPLIT5	ITC 0
1820	REF	1	26,7507	15530 0		CALCPTCH
1821			26,7510	45175 0		DMOVE 1

L POWERED FLIGHT SUBROUTINES

USER'S OWN PAGE NO. 51

1822			26,7511	56776 1	TSRT		
1823	REF	23 LAST 676	26,7512	01455 1		THETAMAN	
1824			26,7513	00002 0		1	
1825	REF	24 LAST 678	26,7514	33455 0	STORE	THETAMAN	
1826			26,7515	76776 0	ITC	0	
1827	REF	1	26,7516	15522 0		GETPTCH2	
1832			26,7517	76776 0	GETPTCH	ITC	0
1833	REF	2 LAST 677	26,7520	15530 0		CALCPTCH	
1834			26,7521	77576 0	GETPTCH2	EXIT	0
1835	REF	8 LAST 663	26,7522	0 3452 1	TC	FLAG2DWN	
1836			26,7523	04000 0	OCT	04000	REMOVE ROLLFLAG
1837	REF	86 LAST 676	26,7524	0 4000 0	TC	INTPRET	
1838			26,7525	44576 0	ITCI	0	
1839	REF	5 LAST 676	26,7526	01472 1		EXITCADR	EXIT FOR PITCH/YAW PORTION OF MANEUVER
1840			26,7527	42775 1	CALCPTCH	DOT	1
1841			26,7530	63703 0	TSLT	ACOS	
1842	REF	39 LAST 676	26,7531	01367 1		XSC	
1843	REF	17 LAST 676	26,7532	01411 1		XSCD	
1844			26,7533	00002 0		1	
1845	REF	25 LAST 678	26,7534	33455 0	STORE	THETAMAN	
1846			26,7535	40576 1	ITCQ	0	
18461	REF	46 LAST 605	26,7536	0 3062 0	TC	CCSHOLE	
18465	REF	47 LAST 678	26,7537	0 3062 0	TC	CCSHOLE	
1847			26,7540	07772 1	COS3	2DEC	.249657385 SCALED AT 2(4)
C1847			26,7541	14276 1			
1848			26,7542	16203 1	COS27	2DEC	.445503260 SCALED AT 2(1)
C1848			26,7543	04007 1			
1849			26,7544	07207 0	COS63	2DEC	.226995250 SCALED AT 2(1)
C1849			26,7545	02705 1			
1850			26,7546	15666 0	COS30	2DEC	.433012700 SCALED AT 2(1)
C1850			26,7547	17272 0			
1851			26,7550	30506 1	1/TAN33	2DEC	.76993250 SCALED AT 2(1)
C1851			26,7551	22276 1			
1852			26,7552	00104 1	1.5DEG	2DEC	.004166666 SCALED AT 2PI
C1852			26,7553	10421 1			
1853			26,7554	02631 1	31.5DEG	2DEC	.0875 SCALED AT 2PI
C1853			26,7555	23146 0			
1854			26,7556	02525 1	30DEG	2DEC	.08333333 SCALED AT 2PI
C1854			26,7557	12524 1			
1855			26,7560	00210 1	3DEG	2DEC	.00833333 SCALED AT 2PI
C1855			26,7561	21041 1			

L POWERED FLIGHT SUBROUTINES

USER'S OWN PAGE NO. 52

1856		26,7562	04000 0	90DEG	2DEC	0.125	SCALED AT 4PI
C1856		26,7563	00000 1				
1861		26,7564	10000 0	DP2(-2)	2DEC	0.25	
C1861		26,7565	00000 1				
1862	REF 8 LAST 673	26,7564	26,7564	SIN30	EQUALS	DP2(-2)	
1863		26,7566	00002 0	DP2(-13)	2OCT	0000200000	
C1863		26,7567	00000 1				
1864		26,7570	06553 1	C33	2DEC	.209667643	
C1864		26,7571	06165 0				
1865		26,7572	20000 0	UNITX	2DEC	0.5	
C1865		26,7573	00000 1				
1866		26,7574	00000 1	ZEROVEC	2DEC	0.0	
C1866		26,7575	00000 1				
1867		26,7576	00000 1		2DEC	0.0	
C1867		26,7577	00000 1				
1868		26,7600	00000 1	UNITY	2DEC	0.0	
C1868		26,7601	00000 1				
1869		26,7602	20000 0		2DEC	0.5	
C1869		26,7603	00000 1				
1870		26,7604	00000 1		2DEC	0.0	
C1870		26,7605	00000 1				
1871		26,7606	15326 1	SCNBMAT	2DEC	0.419335300	
C1871		26,7607	14356 1				
1872		26,7610	00000 1		2DEC	0.0	
C1872		26,7611	00000 1				
1873		26,7612	67222 1		2DEC	-.272319500	
C1873		26,7613	52116 0				
1874		26,7614	00000 1		2DEC	0.0	
C1874		26,7615	00000 1				
1875		26,7616	20000 0		2DEC	0.5	
C1875		26,7617	00000 1				
1876		26,7620	00000 1		2DEC	0.0	
C1876		26,7621	00000 1				
1877		26,7622	10555 0		2DEC	0.272319500	
C1877		26,7623	25661 1				
1878		26,7624	00000 1		2DEC	0.0	
C1878		26,7625	00000 1				
1879		26,7626	15326 1		2DEC	0.419335300	
C1879		26,7627	14356 1				
1880		26,7630	00133 0	DTH	2DEC	0.005555	2.0 DEG SCALED AT 2PI
C1880		26,7631	00327 1				
1881		26,7632	00243 1		2DEC	0.01	3.6 DEG
C1881		26,7633	32703 1				
1882		26,7634	00525 0		2DEC	0.020833	7.5 DEG
C1882		26,7635	12374 1				
1883	REF 1	26,7636	3 3540 0	SETPD16	CAF	SIXTN	
1884	REF 35 LAST 592	26,7637	6 0067 0		AD	FIXLOC	
1885	REF 22 LAST 375	26,7640	5 0123 1		TS	PUSHLOC	

L POWERED FLIGHT SUBROUTINES

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1886	REF	20 LAST 391	26,7641	0 4703 1	TC	RE-ENTER	
1887	REF	23 LAST 621	26,7642	3 4475 0	SETPD6	CAF	SIX
1888	REF	1	26,7643	0 7637 1	TC		SETPD16 +1
1889	REF	2 LAST 567	26,7644	3 3542 1	SETPD18	CAF	EIGHTN
1890	REF	2 LAST 680	26,7645	0 7637 1	TC		SETPD16 +1
1891	REF	3 LAST 572	26,7646	3 3554 0	SETPD28	CAF	TWENTY8
1892	REF	3 LAST 680	26,7647	0 7637 1	TC		SETPD16 +1
1893	REF	4 LAST 626	26,7650	3 3544 1	SETPD20	CAF	TWENTY0
1894	REF	4 LAST 680	26,7651	0 7637 1	TC		SETPD16 +1
18943			26,7652	07777 1	COSONE	2DEC	.2499625
C18943			26,7653	14256 0			SCALED AT 2(4)
18945			26,7654	07737 0	COSSIX	2DEC	.2480300
C18945			26,7655	27116 1			SCALED AT 2(4)
1895	REF	5 LAST 665	26,7572	180DEG	EQUALS	UNITX	SCALED AT 2PI.
1896	REF	6 LAST 680	26,7572	DP2(-1)	EQUALS	UNITX	
1897	REF	7 LAST 680	26,7572	360DEG	EQUALS	UNITX	SCALED AT 4PI.
1900	REF	8 LAST 680	26,7572	CFACTOR	EQUALS	UNITX	
2001			26,7656	42774 0	DONE	DOT	2
2002			26,7657	70616 1		DAD	BPL
2003			26,7660	41406 0		LODON	VXV
2005	REF	40 LAST 678	26,7661	01367 1			XSC
2006	REF	18 LAST 678	26,7662	01411 1			XSCD
2007	REF	3 LAST 659	26,7663	15655 0			COSSIX
2008	REF	1	26,7664	15410 0			DONE1
2009	REF	8 LAST 675	26,7665	15601 1			UNITY
2010	REF	14 LAST 674	26,7666	01477 1			XNB
2011			26,7667	53775 1		SIGN	1
2012			26,7670	75753 1		VXSC	UNIT
2013	REF	9 LAST 676	26,7671	21043 0			NEARONE
2014	REF	15 LAST 680	26,7672	01501 1			XNB +2
2015	REF	17 LAST 676	26,7673	33323 0		STORE	WC
2016			26,7674	45175 0		DMOVE	1
2017			26,7675	56776 1		TSRT	
2018	REF	4 LAST 667	26,7676	15557 1			30DEG
2019			26,7677	00002 0			1
2020	REF	26 LAST 678	26,7700	33455 0		STORE	THETAMAN
2021			26,7701	76776 0		ITC	0
2022	REF	2 LAST 678	26,7702	15522 0			GETPTCH2
20221			26,7703	14250 0	R280K	2DEC	6.463509 E6 B-24
C20221			26,7704	00520 0			

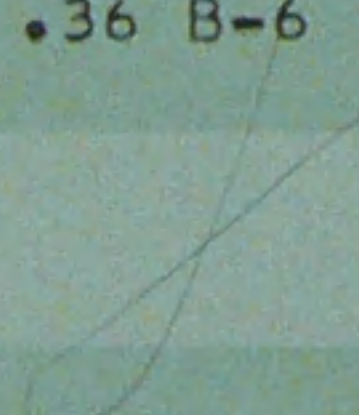
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L POWERED FLIGHT SUBROUTINES

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20222	26,7705	14313 0	R400K	2DEC	6.500085 E6 B-24
C20222	26,7706	27520 0			
20223	26,7707	00134 1	DP.36	2DEC	.36 B-6
C20223	26,7710	05075 0			



L TIME OF FREE-FALL CALCULATIONS

USER'S OWN PAGE NO. 1

L TIME OF FREE-FALL CALCULATIONS

USER'S OWN PAGE NO. 2

P3600 CONIC TIME OF FLIGHT CALCULATION. PROGRAM CALCULATES THE FREE-FALL TIME OF FLIGHT FROM PRESENT POSITION RN
 R3602 AND VELOCITY VN TO A RADIUS SPECIFIED BY RTERM, CORRESPONDING TO 280K OR 400K FEET ALTITUDE.
 R3604 THE POSITION RN MAY BE ON EITHER SIDE OF THE ELLIPSE, BUT RTERM IS CONSIDERED ON THE INBOUND SIDE.

R3606 THE EQUATION IS $TFF = (DEL E - (Q2 - Q1)) / (ALFA \sqrt{ALFA \cdot MUE})$

R3607 AND $Q2 = -\sqrt{RTERM \cdot ALFA (2 - RTERM \cdot ALFA) - LCP \cdot ALFA}$ (INBOUND SIDE) LEQ +/- LCE

R3609 $Q1 = RN \cdot VN \cdot \sqrt{ALFA / MUE}$ LEQ +/- LCE
 R3610

R3612 PROGRAM REQUIREMENTS ON ENTERING.

R3613 1. PUSHDOWN LIST IS ZEROED

R3614 2. INPUTS: POSITION RN 2(-24) M, VELOCITY VN 2(-7) M/CS

R3615 THE PROGRAM EXITS WITH ONE OF THE FOLLOWING IN TFF.

R3617 A. TFF = FLIGHT TIME. NORMAL CASE FOR POSITIVE FLIGHT TIME LESS THAN ONE ORBITAL PERIOD.

R3619 B. TFF = +0. THIS INDICATES THAT THE TRAJECTORY HAS GONE PAST RTERM AND THE PRESENT ALTITUDE IS
 R3621 LESS THAN THE SPECIFIED TERMINAL ALTITUDE.

R3622 C. TFF = POSMAX. THIS INDICATES THAT THE ELLIPTICAL CONIC FROM THE PRESENT POSITION WILL NOT
 R3624 RETURN TO THE SPECIFIED ALTITUDE.

R3625 THE FOLLOWING QUANTITIES REMAIN IN THE PUSHLIST

R3626 ALFA 2(+21) IN PDL 10D

R3627 (2-RTERM ALFA) 2(-3) IN PDL 6

R3628 RTERM ALFA 2(-3) IN PDL 4

R3629 LCP ALFA 2(-6) IN PDL 2

R3630 THUS THE CALLING PROGRAM CAN CALCULATE TERMINAL VELOCITY, VTERM, AND COS GAMMA OR SIN GAMMA USING RESIDUE FROM
 R3632 CALCTFF.

R3633 $VTERM^2 (RTERM / MUE) = (2 - RTERM \cdot ALFA)$
 R3634

R3635 $SIN \ GAMMA^2 = 1 - (LCP \cdot ALFA / RTERM \cdot ALFA (2 - RTERM \cdot ALFA))$
 R3636

R3637 $COS \ GAMMA^2 = LCP \cdot ALFA / (RTERM \cdot ALFA (2 - RTERM \cdot ALFA))$
 R3638

R3643 QUANTITIES ARE NORMALIZED BY LCE TO OBTAIN BEST ACCURACY IN COMPUTING, ESPACIALLY FOR SPARCTAN. PROGRAM
 R3645 ACCEPTS LCE LEQ 1.0. THE SMALLEST LCE WHICH IS NORMALIZED IS 2(-4), ALTHOUGH THIS MAY BE EXTENDED IF
 R3647 DESIRED. (LCE L 2(-3) ALL HAVE SAME SCALING)
 R3648

L TIME OF FREE-FALL CALCULATIONS

USER'S OWN PAGE NO. 3

P3649 TEMPORARY ERASABLE ASSIGNMENTS FOR TFF COMPUTATIONS

PUSHLIST 00 - 19D, X1

3651			0016	RTERM	=	14D	
3652			31,6000		BANK	31	
3653			31,6000	77576 0	CALCTFF	EXIT	0
3654	REF	1	31,6001	1 1723 1	CCS	REFSWTCH	SEE IF GROUND DESIRES 280K FF REFERENCE
3655			31,6002	0 6006 1	TC	+4	NO
3656			31,6003	0 6006 1	TC	+3	
36565	REF	215 LAST 620	31,6004	3 5501 0	CAF	ZERO	
3657			31,6005	0 6012 1	TC	+5	
365701	REF	1	31,6006	3 6320 0	CAF	NOMBURN	TEST IF ANY NOMINAL BURN (SPS1,SPS2,
365702	REF	29 LAST 628	31,6007	7 0647 0	MASK	FLAGWRD2	SPS3, SPS4, ARRST) FLAG SET
365703	REF	487 LAST 628	31,6010	1 0000 0	CCS	A	
365704	REF	91 LAST 599	31,6011	4 5503 0	CS	TWO	
365705	REF	36 LAST 679	31,6012	2 0067 1	INDEX	FIXLOC	X1=-2 FOR 400K FT. AND 0 FOR 280K FT.
365706	REF	13 LAST 670	31,6013	5 0046 0	TS	X1	
365707	REF	87 LAST 678	31,6014	0 4000 0	TC	INTPRET	
365708			31,6015	44175 1	DMOVE*	1	
365709			31,6016	76576 1	RTB		
36571	REF	1	31,6017	33607 0		R280K,1	
365711	REF	13 LAST 673	31,6020	20265 1		FRESHPD	
3661	REF	1	31,6021	32017 0	STORE	RTERM	2(-24)
3662			31,6022	67174 1	VSD	2	
3663			31,6023	64722 1	DMP	DMP	
3664			31,6024	63726 1	TSLT	BDSU	
3665	REF	21 LAST 644	31,6025	00774 0		VN	VEL 2 (-7)
3666	REF	1	31,6026	22307 0		1/MUE	2 (+35)
3667	REF	8 LAST 649	31,6027	01024 0		RMAG	2(-25)
3668			31,6030	00002 0		1	
3669	REF	5 LAST 324	31,6031	06304 0		DP1/4	RMAG ALFA 2 (-3) TO PDL 0,1
3670			31,6032	47575 0	NOLOD	1	
3671			31,6033	56712 0	TSRT	DDV	
3672			31,6034	00002 0		1	
3673	REF	9 LAST 684	31,6035	01024 0		RMAG	
3674			31,6036	32013 1	STORE	10D	
36751			31,6037	47575 0	NOLOD	1	
36752			31,6040	73776 0	BMN		
36753	REF	1	31,6041	22465 0		HIECC	
3676			31,6042	64774 1	DMP	2	
3677			31,6043	53122 0	SQRT	DMP	
3678			31,6044	57706 1	TSLC	BDDV	
3679			31,6045	00013 0		10D	ALFA 2(+21)
3680	REF	1	31,6046	22311 1		MUE(37)	

L TIME OF FREE-FALL CALCULATIONS

USER'S OWN PAGE NO. 4

3681			31,6047	00013 0		10D	ALFA
3682			31,6050	00024 1		19D	-N. SAVE FOR GETTFF1
3683	REF	1	31,6051	22313 0		DP2PI/16	
3684			31,6052	32015 1	STORE	12D	ORB PERIOD 2PI/ALFA SQRT(ALFA MUE)
A3685							2(-17-N)
3686			31,6053	41773 1	VXV	3	
3687			31,6054	44733 0	VSLT	VSQ	
3688			31,6055	64722 1	DMP	DMP	
36881			31,6056	76576 1	RTB		
3689	REF	18 LAST 650	31,6057	00766 0		RN	
3690	REF	22 LAST 684	31,6060	00774 0		VN	MTRS/CS 2(-7)
36901			31,6061	00002 0		1	
3691	REF	2 LAST 684	31,6062	22307 0		1/MUE	2(+35)
3692			31,6063	00013 0		10D	ALFA 2(+21)
3693	REF	1	31,6064	22255 0		NORMBYE	GET NORM COUNT BASED ON LCE SQ.
A3694							LCP ALFA 2(-6) TO PDL 2,3
36941			31,6065	47575 0	NOLDD	1	
36942			31,6066	66616 0	DSJ	BPL	
36943	REF	1	31,6067	15710 0		DP,36	
36944	REF	1	31,6070	22077 1		LOECC	
36945			31,6071	66775 1	DSJ	1	
36946			31,6072	73776 0	BMN		
36947			31,6073	00013 0		10D	
36948	REF	1	31,6074	22322 1		ALFALIM	
36949	REF	2 LAST 684	31,6075	22465 0		HIECC	
3695			31,6076	64776 0	LOECC	DMP	0
3696	REF	2 LAST 684	31,6077	00017 1		RTERM	2(-24)
3697			31,6100	00013 0		10D	ALFA 2(+21)
A3698							RTERM ALFA 2(-3) TO PDL 4,5
3699			31,6101	66776 1	DSJ	0	
3700	REF	6 LAST 684	31,6102	06304 0		DP1/4	
3701			31,6103	00005 1		4	RTERM ALFA 2(-3)
A3702							(2-RTERM ALFA) 2(-3) TO PDL 6,7
3703			31,6104	64775 0	DMP	1	
3704			31,6105	53176 1	SQRT		
3705			31,6106	00013 0		10D	ALFA 2(+21)
3706	REF	3 LAST 685	31,6107	22307 0		1/MUE	2(+35) TO PDL 8,9
3707			31,6110	42774 0	DOT	2	
3708			31,6111	63722 0	TSLT	DMP	
37082			31,6112	76576 1	RTB		
3709	REF	19 LAST 685	31,6113	00766 0		RN	
3710	REF	23 LAST 685	31,6114	00774 0		VN	2(-7)
37101			31,6115	00002 0		1	
3711			31,6116	77777 0		-	LEAVE Q1 2(-3) IN MPAC

L TIME OF FREE-FALL CALCULATIONS

USER'S OWN PAGE NO. 5

3712	REF	1	31,6117	22143	1		ARGQ1	SAVE MPAC FOR GONE PAST TEST. , NORMLZE
3713			31,6120	32011	0	STORE	8D	Q1 (OR Q1/2 OR 2Q1 OR 4Q1)
3714			31,6121	64774	1	DMP	2	CALCULATE Q2
3715			31,6122	66771	0	DSJ	RTB	
3716			31,6123	70776	0	DAD		
3717			31,6124	77777	0		-	(2-RTERM ALFA) 2(-3) FROM PDL 6,7
3718			31,6125	77777	0		-	RTERM ALFA 2(-3) FROM PDL 4,5
3719			31,6126	77777	0		-	LCP ALFA 2(-6) FROM PDL 2,3
3720	REF	1	31,6127	22155	0		ARGQ2	TEST SGN, TAKE ROOT (RT DOT NEG)
A3721								RETURN -Q2 (OR -Q2/2 OR -2Q2 OR -4Q2)
3722			31,6130	00011	1		8D	Q1 (AT SIMILAR SCALE)
3723			31,6131	32011	0	STORE	8D	Q1-Q2 (OR /2 OR 2 OR 4)
A3724								LEQ +/- 2LCE (OR 1 OR 4 OR 8)
3725			31,6132	66775	1	DSJ	1	
3726			31,6133	76522	0	RTB	DMP	
3728			31,6134	00007	0		6	2-RTERM ALFA 2(-3)
3729			31,6135	77777	0		-	2-RTERM ALFA-RMAG ALFA 2(-3) IN MPAC
3730	REF	1	31,6136	22213	1		GETTFF	C(MPAC) = DEN 2(-3)
3731			31,6137	00015	0		12D	ORB PERIOD 2(-17-N)
373201	REF	10 LAST 610	31,6140	33457	1	STORE	TFF	
373202			31,6141	40576	1	ITCQ	0	
3733	REF	37 LAST 684	31,6142	2 0067	1	ARGQ1	INDEX	FIXLOC
3734			31,6143	2 0020	1		INDEX	16D
3735	REF	31 LAST 596	31,6144	3 4513	1	CAF	BIT4	COUNT BY ONES
3736	REF	8 LAST 524	31,6145	0 5416	1	TC	SHORTMP	EFFECTIVE SH L 3 (2 OR 4 OR 5)
3737	REF	476 LAST 662	31,6146	3 0117	0	XCH	MPAC +2	MOVE UP
3738	REF	477 LAST 686	31,6147	3 0116	1	XCH	MPAC +1	
3739	REF	478 LAST 686	31,6150	5 0115	1	TS	MPAC	MPAC IS L .5 AS REQD BY TEST LATER.
3740	REF	38 LAST 686	31,6151	2 0067	1	INDEX	FIXLOC	
3741			31,6152	5 0022	1	TS	18D	SAVE FOR GONE PAST TEST.
3742	REF	39 LAST 388	31,6153	0 4024	0	TC	DANZIG	
3746	REF	39 LAST 686	31,6154	2 0067	1	ARGQ2	INDEX	FIXLOC
3747			31,6155	2 0021	0		INDEX	17D
3748	REF	14 LAST 614	31,6156	3 4510	1	CAF	BIT7	SH L BY 2,5
3749	REF	9 LAST 686	31,6157	0 5416	1	TC	SHORTMP	DO EFFECTIVE SHL 6 (4 OR 8 OR 10)
3750	REF	216 LAST 684	31,6160	3 5501	0	CAF	ZERO	TP ENTRY , C(MPAC+2) VALID.
3751	REF	479 LAST 686	31,6161	3 0117	0	XCH	MPAC +2	
3752	REF	480 LAST 686	31,6162	3 0116	1	XCH	MPAC +1	
3753	REF	481 LAST 686	31,6163	5 0115	1	TS	MPAC	
3754	REF	482 LAST 686	31,6164	1 0115	0	CCS	MPAC	
3755	REF	1	31,6165	0 6177	0	TC	Q2ROOT	
3756			31,6166	0 6170	1	TC	+2	
3757	REF	1	31,6167	0 6202	1	TC	NEGQ2	NO FREEFALL CONIC TO RTERM FROM HERE.
3758	REF	483 LAST 686	31,6170	1 0116	0	CCS	MPAC +1	CK LO WORD. IF NEG, ASSUME ROUNDOFF.
3759	REF	2 LAST 686	31,6171	0 6177	0	TC	Q2ROOT	

L TIME OF FREE-FALL CALCULATIONS

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3760	REF 40 LAST 686	31,6172	0 4024 0		TC	DANZIG	
3761	REF 217 LAST 686	31,6173	3 5501 0	NOROOT	CAF	ZERO	NEG ARG FROM ROUNDOFF. SET =0.
3762	REF 484 LAST 686	31,6174	5 0115 1		TS	MPAC	
3763	REF 485 LAST 687	31,6175	5 0116 1		TS	MPAC +1	
3764	REF 41 LAST 687	31,6176	0 4024 0		TC	DANZIG	
3765	REF 168 LAST 619	31,6177	0 5654 0	Q2ROOT	TC	BANKCALL	GO TAKE DP SQRT
3766	REF 3 LAST 97	31,6200	07322 0		CADR	SQRT3	C(MPAC +2) =0
3767	REF 42 LAST 687	31,6201	0 4024 0		TC	DANZIG	
3768	REF 27 LAST 582	31,6202	3 4476 0	NEGQ2	CAF	POSMAX	THIS WILL LEAVE PUSHLOC AT PDL2
3769	REF 11 LAST 686	31,6203	5 1456 1		TS	TFF	
3770	REF 12 LAST 687	31,6204	5 1457 0		TS	TFF +1	
3771	REF 40 LAST 686	31,6205	4 0067 1		CS	FIXLOC	BUT RESET IT.
3772		31,6206	4 0000 0		COM		
3773	REF 23 LAST 679	31,6207	5 0123 1		TS	PUSHLOC	
3774	REF 88 LAST 684	31,6210	0 4000 0		TC	INTPRET	
3775		31,6211	40576 1		ITCQ	0	AND RETURN TO CALLING PROGRAM.
R3776	ENTER WITH (2-RTerm ALFA-RMAG ALFA) 2(-3) IN MPAC,+1. Q1-Q2 IN PDL 8,9						
3777	REF 41 LAST 687	31,6212	2 0067 1	GETTFF	INDEX	FIXLOC	
3778		31,6213	2 0020 1		INDEX	16D	COUNT BY 1,5
3779	REF 32 LAST 686	31,6214	3 4513 1		CAF	BIT4	EFFECTIVE SL 3 (2 OR 4 OR 5)
3780	REF 10 LAST 686	31,6215	0 5416 1		TC	SHORTMP	C(MPAC +1,+2) = DEN ON RETURN.
3781	REF 42 LAST 687	31,6216	2 0067 1		INDEX	FIXLOC	(UNSCALD NUM AND DEN LEQ +/- 2 LCE)
3782		31,6217	4 0010 1		CS	8D	
3783	REF 486 LAST 687	31,6220	3 0116 1		XCH	MPAC +1	SAVE Q2-Q1, GET DEN
3784	REF 487 LAST 687	31,6221	5 0115 1		TS	MPAC	AND SAVE.
3785	REF 43 LAST 687	31,6222	2 0067 1		INDEX	FIXLOC	
3786		31,6223	2 0020 1		INDEX	16D	COUNT BY 1,5
3787	REF 1	31,6224	3 6316 0		CAF	-1/2PI	
3788		31,6225	2 5777 1		EXTEND		
3789	REF 488 LAST 687	31,6226	4 0116 0		MP	MPAC +1	
3790	REF 489 LAST 687	31,6227	5 0117 0		TS	MPAC +2	-(Q2-Q1) /2PI SAVED
3791	REF 1	31,6230	0 6323 0		TC	SPARCTAN	NUM=C(MPAC+1),DEN=C(MPAC)
A3792							RETURN WITH DEL ECC. ANOM/2PI IN A
A3793				RANGE (0,1)			
3794	REF 490 LAST 687	31,6231	6 0117 0		AD	MPAC +2	
3795	REF 491 LAST 687	31,6232	3 0115 1		XCH	MPAC	TFF NORM=(DEL E:(Q2:Q1))/2PI
A3796				FOLLOWING TEST			VALID WHEN SPTEM3 L .5
3797	REF 44 LAST 687	31,6233	2 0067 1		INDEX	FIXLOC	
3798		31,6234	3 0022 1		XCH	18D	IF BOTH SGN Q1 AND SGN ATAN ARE
3799		31,6235	6 6237 1		AD	+2	NEG, THEN SET TFF, +1 =+0. (-3/4+1)
3800	REF 1	31,6236	6 0072 1		AD	SGNATAN	LEFT BY SPARCTAN
3801	REF 488 LAST 684	31,6237	5 0000 1		TS	A	(=50K =-3/4 +1 FOR OVFL TEST)
3802	REF 1	31,6240	0 6243 1		TC	GETTFF3	OK, GO ON

L TIME OF FREE-FALL CALCULATIONS

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3803	REF 218 LAST 687	31,6241	3 5501 0	CAF	ZERO	
3804	REF 2 LAST 686	31,6242	0 6203 0	TC	NEGQ2 +1	GONE PAST. SET TFF=0.
3805	REF 45 LAST 687	31,6243	2 0067 1	GETTFF3	INDEX FIXLOC	
3806		31,6244	2 0023 1	INDEX	19D	-N. BIT4 BELOW VALID FOR N LEQ 10D.
3807	REF 33 LAST 687	31,6245	3 4513 1	CAF	BIT4	SCALE FACTOR, 2(-11+N)
3808		31,6246	2 5777 1	EXTEND		
3809	REF 492 LAST 687	31,6247	4 0115 0	MP	MPAC	
3810	REF 493 LAST 688	31,6250	5 0115 1	TS	MPAC	
3811	REF 59 LAST 415	31,6251	3 0003 1	XCH	LP	
3812	REF 494 LAST 688	31,6252	5 0116 1	TS	MPAC +1	NOW READY TO MULT BY ORB PERIOD
3813	REF 43 LAST 687	31,6253	0 4024 0	TC	DANZIG	

R3814 TO IMPROVE PRECISION OF SPARCTAN AT SMALLER LCE, COME HERE TO GET NORMALIZATION FACTOR
 R3816 BASED ON SIZE OF LCE SQ. SHIFT BY 2,S. SCALING RESULTING FROM BELOW YIELDS AT LEAST ONE LEAD ZERO IN
 R3818 NUM AND DEN USED IN SPARCTAN.

3819	REF 1	31,6254	3 6303 1	NORMBYE	CAF	OCT37440	BRACKET SIZE BY OVFL TESTS
3820	REF 495 LAST 688	31,6255	6 0115 1	AD	MPAC		C(MPAC)= (1-LCE SQ) 2(-6)
3821	REF 489 LAST 687	31,6256	5 0000 1	TS	A		
3822	REF 1	31,6257	0 6275 1	TC	ENORM0		HERE IF LCE GEQ 2(-1)
3823	REF 1	31,6260	6 6304 0	AD	OCTNEG30		(EFFECTIVE CONST 37410)
3824	REF 490 LAST 688	31,6261	5 0000 1	TS	A		
3825	REF 1	31,6262	0 6277 0	TC	ENORM1		HERE IF LCE GEQ 2(-2)
3826	REF 1	31,6263	6 6305 1	AD	OCTNEG6		(EFFECTIVE CONST 37402)
3827	REF 491 LAST 688	31,6264	5 0000 1	TS	A		
3828	REF 1	31,6265	0 6301 0	TC	ENORM2		HERE IF LCE GEQ 2(-3)
3829	REF 16 LAST 614	31,6266	4 4515 0	CS	BIT2		HERE IF LCE L 2(-3)
3830	REF 46 LAST 688	31,6267	2 0067 1	ENORM3	INDEX FIXLOC		
3831		31,6270	5 0020 0	TS	16D		COUNT FOR SL BY 1,S ALSO NEEDED
3832	REF 492 LAST 688	31,6271	6 0000 1	AD	A		
3833	REF 47 LAST 688	31,6272	2 0067 1	INDEX	FIXLOC		
3834		31,6273	5 0021 1	TS	17D		COUNT FOR SL BY 2,S.
3835	REF 44 LAST 688	31,6274	0 4024 0	TC	DANZIG		

3836	REF 28 LAST 601	31,6275	3 4516 1	ENORM0	CAF	BIT1
3837	REF 1	31,6276	0 6267 1	TC	ENORM3	
3838	REF 219 LAST 688	31,6277	3 5501 0	ENORM1	CAF	ZERO
3839	REF 2 LAST 688	31,6300	0 6267 1	TC	ENORM3	
3840	REF 29 LAST 688	31,6301	4 4516 0	ENORM2	CS	BIT1
3841	REF 3 LAST 688	31,6302	0 6267 1	TC	ENORM3	

3842		31,6303	37440 0	OCT37440	OCT	37440
3843		31,6304	77747 0	OCTNEG30	OCT	-00030
3844		31,6305	77771 0	OCTNEG6	OCT	-00006

3845		31,6306	33453 0	1/MUE	2DEC*	.250876044 E-10 B35*	CS SQ/M CUBE
C3845		31,6307	02065 0				
3846		31,6310	11217 0	MUE(37)	2DEC*	3.986032233 E10 B-37*	CS SQ/M CUBE
C3846		31,6311	27040 0				

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3847	31,6312	14441 0	DP2PI/16 2DEC	.39269909
C3847	31,6313	37327 0		
3848	31,6314	76563 0	DEC	-.15915494 B-2
3849	31,6315	75347 0	DEC	-.15915494 B-1
3850	31,6316	72717 0	-1/2PI DEC	-.15915494
3851	31,6317	65640 0	DEC	-.15915494 B1
385101	31,6320	00171 0	NOMBURN OCT	00171
38515	31,6321	04316 1	ALFALIM 2DEC	6.562 E-8 B21
C38515	31,6322	25750 1		

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P3852 INVERSE TANGENT. THE SINGLE PRECISION ARCTAN IS BASED ON A HASTINGS 3 TERM POLYNOMIAL. THE PROGRAM
 R3854 ACCEPTS NUM AND DEN, WHERE $\tan(\theta) = \text{NUM}/\text{DEN}$, AND GIVES θ/π IN THE RANGE (0,1)
 R3856 ENTER WITH $C(\text{MPAC} + 1) = \text{NUM}$, AND $C(\text{MPAC}) = \text{DEN}$. NOTE THAT FOR CALC TFF, $\theta = \text{DEL E}/2$.
 R3858 SPARCTAN USES 3 SP TEMPORARIES: SPTEMQ, SPTEM1, SPTEM2

R3859 TEMPORARY ERASABLE ASSIGNMENTS FOR SPARCTAN ROUTINE

3860	REF	39	LAST	388	0071	SPTEMQ	=	VBUF	
3861	REF	40	LAST	690	0072	SPTEM1	=	VBUF +1	
3862	REF	41	LAST	690	0073	SPTEM2	=	VBUF +2	
3863	REF	1			0071	SPATANQ	EQUALS	SPTEMQ	
3864	REF	1			0072	SGNATAN	EQUALS	SPTEM1	
3865	REF	324	LAST	626	31,6323	3 0001 0	SPARCTAN	XCH	Q
3866	REF	1			31,6324	5 0071 1		TS	SPATANQ
3867	REF	15	LAST	621	31,6325	3 4502 1		CAF	BIT13
3868	REF	1			31,6326	5 0073 0		TS	SPTEM2
3869	REF	2	LAST	687	31,6327	5 0072 1		TS	SGNATAN
3870	REF	496	LAST	688	31,6330	1 0116 0		CCS	MPAC +1
3871	REF	1			31,6331	0 6341 1		TC	TESTDEN
3872	REF	2	LAST	690	31,6332	0 6341 1		TC	TESTDEN
3873					31,6333	0 6335 1		TC	+2
3874	REF	3	LAST	690	31,6334	0 6340 0		TC	TESTDEN -1
3875	REF	3	LAST	690	31,6335	4 0072 0		CS	SGNATAN
3876	REF	4	LAST	690	31,6336	5 0072 1		TS	SGNATAN
3877	REF	497	LAST	690	31,6337	4 0116 0		CS	MPAC +1
3878	REF	498	LAST	690	31,6340	5 0116 1		TS	MPAC +1
									ABVAL OF NUM.
3879	REF	499	LAST	690	31,6341	1 0115 0	TESTDEN	CCS	MPAC
3880	REF	1			31,6342	0 6355 1		TC	SPATAN1
3881	REF	1			31,6343	0 6434 1		TC	SPATAN4
3882					31,6344	0 6346 0		TC	+2
3883	REF	2	LAST	690	31,6345	0 6434 1		TC	SPATAN4
3884	REF	5	LAST	690	31,6346	4 0072 0		CS	SGNATAN
3885	REF	6	LAST	690	31,6347	5 0072 1		TS	SGNATAN
3886	REF	500	LAST	690	31,6350	4 0115 0		CS	MPAC
3887	REF	501	LAST	690	31,6351	5 0115 1		TS	MPAC
									ABVAL OF DEN.
3888	REF	502	LAST	690	31,6352	1 0116 0		CCS	MPAC +1
3889	REF	4	LAST	690	31,6353	0 6341 1		TC	TESTDEN
3890	REF	2	LAST	690	31,6354	0 0071 1		TC	SPATANQ
									EITHER POS OR +0. WAS NUM ZERO
									NO, GO ON
									YES, THETA =0 RETURN
3891					31,6355	2 5777 1	SPATAN1	EXTEND	
3892	REF	1			31,6356	4 6362 1		MP	ITANCO
3893	REF	503	LAST	690	31,6357	6 0116 1		AD	MPAC +1
3894	REF	493	LAST	688	31,6360	1 0000 0		CCS	A
3895	REF	1			31,6361	0 6367 0		TC	SPATAN2
3896					31,6362	67237 0	ITANCO	DEC	-.2714558
3897	REF	220	LAST	688	31,6363	3 5501 0		CAF	ZERO
									HERE NEGLECT 1 BIT OF CCS. LOST IN MP.
									POLY TRANSITION TEST.
									NUM (PNZ, SO +0 IN CCS IMPOSS)
									IF NEG, USE $Z = N/D$ FOR POLY.
									IF POS, USE $Z = (N-D)/(N+D)$ FOR POLY.
									$= -(1-K)/(1+K)$, AND $K = .573$
									THIS FORM OF POLY HAS BETTER BEHAVIOR

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3898	REF	2	LAST	690	31,6364	5	0073	0	TS	SPTEM2	NEAR ORIGIN. REPLACE PI/4 BY ZERO. SET +0 TO FIT IN WITH CALC BELOW.	
3899	REF	504	LAST	690	31,6365	3	0116	1	XCH	MPAC +1		
3900	REF	1			31,6366	0	6371	1	TC	SPATAN3		
3901	REF	505	LAST	691	31,6367	4	0115	0	SPATAN2	CS	MPAC	N-D AND N+D WILL NOT OVFL IN AD IF LCE L 1.0 DUE TO NORMALIZATION BY LCE. NUM
A3902												
3903	REF	506	LAST	691	31,6370	6	0116	1	AD	MPAC +1		
3904	REF	28	LAST	531	31,6371	5	0021	1	SPATAN3	TS	SR	DID IT OVFL.. NO, GO DO DV. YES, SHIFT BOTH NUM AND DEN R1. (NUM-DEN)/4 IN SR (NUM+DEN)/2 IN A.
3905	REF	507	LAST	691	31,6372	3	0115	1	XCH	MPAC		
3906	REF	508	LAST	691	31,6373	6	0116	1	AD	MPAC +1		
3907	REF	494	LAST	690	31,6374	5	0000	1	TS	A	DID IT OVFL.. NO, GO DO DV. YES, SHIFT BOTH NUM AND DEN R1. (NUM-DEN)/4 IN SR (NUM+DEN)/2 IN A.	
3908	REF	1			31,6375	0	6401	1	TC	SPATAN5		
3909	REF	29	LAST	691	31,6376	3	0021	1	XCH	SR		
3910	REF	30	LAST	691	31,6377	3	0021	1	XCH	SR	NORMALLY, (NUM+DEN) NORMALLY, (NUM-DEN) /2	
3911	REF	19	LAST	423	31,6400	6	4522	0	AD	HALF		
3912	REF	509	LAST	691	31,6401	5	0115	1	SPATAN5	TS		MPAC
3913	REF	31	LAST	691	31,6402	3	0021	1	XCH	SR	NO OVFL PROB. Z/2 = (NUM-DEN)/2 (NUM+DEN) Z/2 = NUM/2DEM NEAR ORIGIN	
3914					31,6403	2	5777	1	EXTEND			
3915	REF	510	LAST	691	31,6404	5	0115	1	DV	MPAC		
3916	REF	511	LAST	691	31,6405	5	0115	1	TS	MPAC	NO OVFL PROB. Z/2 = (NUM-DEN)/2 (NUM+DEN) Z/2 = NUM/2DEM NEAR ORIGIN	
A3917												
3918					31,6406	2	5777	1	EXTEND			
3919					31,6407	4	0000	0	SQUARE		Z Z/4	
3920	REF	512	LAST	691	31,6410	5	0116	1	TS	MPAC +1		
3921					31,6411	2	5777	1	EXTEND			
3922	REF	1			31,6412	4	6441	1	MP	ITANC7	EITHER 1/4=PI/4 OR 0 C(A)=THETA/PI ,RANGE(0 ,.5) SEE NOTE	
3923	REF	1			31,6413	6	6440	1	AD	ITANC5		
3924					31,6414	2	5777	1	EXTEND			
3925	REF	513	LAST	691	31,6415	4	0116	0	MP	MPAC +1	AFFIX SGN FOR POLY TO HAVE RANGE (-.5,.5)	
3926	REF	1			31,6416	6	6437	1	AD	ITANC3		
3927					31,6417	2	5777	1	EXTEND			
3928	REF	514	LAST	691	31,6420	4	0116	0	MP	MPAC +1	90 DEG CASE COME HERE RETURN WITH THETA/ PI IN A. RANGE(0,1) POLY GIVES THETA/ PI RANGE(-.5,+.5)	
3929	REF	1			31,6421	6	6436	0	AD	ITANC1		
3930					31,6422	6	0000	1	DOUBLE			
3931					31,6423	2	5777	1	EXTEND		SINCE THE OUTPUT OF SPARCTAN ,	
3932	REF	515	LAST	691	31,6424	4	0115	0	MP	MPAC		
3933	REF	3	LAST	691	31,6425	6	0073	0	AD	SPTEM2		
3934	REF	325	LAST	690	31,6426	5	0001	0	TS	Q	AFFIX SGN FOR POLY TO HAVE RANGE (-.5,.5)	
3935	REF	7	LAST	690	31,6427	1	0072	0	CCS	SGNATAN		
3936	REF	326	LAST	691	31,6430	3	0001	0	XCH	Q		
3937	REF	3	LAST	690	31,6431	0	0071	1	TC	SPATANQ	90 DEG CASE COME HERE RETURN WITH THETA/ PI IN A. RANGE(0,1) POLY GIVES THETA/ PI RANGE(-.5,+.5)	
3938	REF	327	LAST	691	31,6432	4	0001	1	CS	Q		
3939	REF	20	LAST	691	31,6433	6	4522	0	AD	HALF		
3940	REF	21	LAST	691	31,6434	6	4522	0	SPATAN4	AD	SINCE THE OUTPUT OF SPARCTAN ,	
3941	REF	4	LAST	691	31,6435	0	0071	1	TC	SPATANQ		
A3942												
R3943	NOTE	***	RETURN TO	CALCTFF	WITH	DEL	E/2	PI	IN	A, RANGE (0,1).		

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R3945 IS IN THE RANGE (0,1), THE +/- 90 DEG CASES ARE IDENTICAL. FURTHER SINCE FOR CALCTFF, THE ANGLE THETA/PI
R3947 EQUALS DEL E/2 PI, SPARCTAN CONSIDERS BOTH 0 DEG AND 180 DEG AS 0 DEG. SHOULD PROGRAMS OTHER THAN CALCTFF
R3949 DESIRE ARC TANGENTS, THEN SPARCTAN CAN BE MADE GENERAL.
R3950

3951	31,6436	12133 0	ITANC1	DEC	.318060008	=C1 /PI
3952	31,6437	62723 0	ITANC3	DEC	-.40894149	= 4 C3/PI
3953	31,6440	27656 1	ITANC5	DEC	.7449806	= 16 C5/PI
3954	31,6441	46450 1	ITANC7	DEC	-.79435682	= 64 C5 /PI

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3955			31,6442	73773 0	HIECC1	BMN	3	
3956			31,6443	71405 0		LXC,1	LODON	
3957			31,6444	45070 1		DMOVE	TSRT*	
39575			31,6445	76576 1		RTB		
3958			31,6446	00017 1			14D	
3959	REF	1	31,6447	22457 1			TFFMAX	
3960			31,6450	00024 1			19D	
3961			31,6451	00015 0			12D	
39615			31,6452	00027 1			11D,1	
3962	REF	14 LAST 684	31,6453	20265 1			FRESHPD	
3963	REF	13 LAST 687	31,6454	33457 1		STORE	TFF	
39635			31,6455	40576 1		ITCQ	0	
3964			31,6456	45175 0	TFFMAX	DMOVE	1	
3965			31,6457	76576 1		RTB		
3966	REF	10 LAST 680	31,6460	21043 0			NEARONE	
3967	REF	15 LAST 693	31,6461	20265 1			FRESHPD	
3968	REF	14 LAST 693	31,6462	33457 1		STORE	TFF	
3969			31,6463	40576 1		ITCQ	0	
4000			31,6464	45175 0	HIECC	DMOVE	1	
4001			31,6465	76576 1		RTB		
4002			31,6466	00013 0			10D	
4003	REF	16 LAST 693	31,6467	20265 1			FRESHPD	
4004			31,6470	32017 0		STORE	14D	
4006			31,6471	41775 1		VXV	1	
40062			31,6472	71116 1		ABVAL	TSLT	
40064	REF	20 LAST 685	31,6473	00766 0			RN	
40066	REF	24 LAST 685	31,6474	00774 0			VN	
40068			31,6475	00003 1			2	
4007			31,6476	47575 0		NLOD	1	
4008			31,6477	64716 0		DMP	TSLT	
4010	REF	4 LAST 685	31,6500	22307 0			1/MUE	
40101			31,6501	00002 0			1	H/MUE B5 PD2,3
4011			31,6502	47575 0		NLOD	1	
4012			31,6503	64776 0		DMP		
4013			31,6504	00001 0			0	H H/MUE B-26 PD4,5
4014			31,6505	73174 1		UNIT	2	
4015			31,6506	42722 0		DOT	DMP	
4016			31,6507	63643 0		TSLT	DSQ	
4017	REF	21 LAST 693	31,6510	00766 0			RN	
4018	REF	25 LAST 693	31,6511	00774 0			VN	
4019			31,6512	00003 1			2	
4020			31,6513	00003 1			2	
4021			31,6514	62774 1		DDV	2	

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4022			31,6515	66643 0	DSU	DSQ		
4023			31,6516	70653 0	DAD	SQRT		
4024			31,6517	00005 1		4D		
4025	REF	10 LAST 684	31,6520	01024 0		RMAG		
4026	REF	1	31,6521	22674 1		TWO(-2)	E B-1	PD6,7
40291			31,6522	47576 0	NOLOD	0		
40292	REF	1	31,6523	33726 1	STORE	ECC		
4030			31,6524	47575 0	NOLOD	1		
4031			31,6525	65672 1	BDSU	TSRT		
4032	REF	2 LAST 694	31,6526	22674 1		TWO(-2)		
4033			31,6527	00002 0		1	B-2	DEL PD8,9
4034			31,6530	56776 1	TSRT	0		
4035			31,6531	00005 1		4		
4036			31,6532	00002 0		1	PD10,11	B-27
4037			31,6533	66775 1	DSU	1		
4038			31,6534	61776 0	BDDV			
4039	REF	3 LAST 694	31,6535	22674 1		TWO(-2)		
4040			31,6536	00011 1		8D	H H/MUE(2-DEL)	B-25 =RPAR PD10,11
40421			31,6537	56775 1	TSRT	1		
40422			31,6540	65616 0	BDSU	BPL		
40423	REF	1	31,6541	15706 1		R400K		
40424			31,6542	00002 0		1		
40425			31,6543	00013 0		10D		
40426	REF	2 LAST 693	31,6544	22457 1		TFFMAX		
404261			31,6545	42775 1	DOT	1		
404262			31,6546	43776 0	BPL			
404263	REF	22 LAST 693	31,6547	00766 0		RN		
404264	REF	26 LAST 693	31,6550	00774 0		VN		
404265	REF	1	31,6551	22443 1		HIECC1		
4043			31,6552	62774 1	DDV	2		
4044			31,6553	66672 1	DSU	TSRT		
4045			31,6554	62776 0	DDV			
4046			31,6555	00005 1		4D		
4047	REF	11 LAST 694	31,6556	01024 0		RMAG		
4048	REF	4 LAST 694	31,6557	22674 1		TWO(-2)		
4049			31,6560	00002 0		1		
4050			31,6561	00007 0		6D	COSTH	PD12,13 B-1
40501			31,6562	47575 0	NOLOD	1		
4052			31,6563	73726 0	BMN	BDSU		
40525	REF	3 LAST 694	31,6564	22457 1		TFFMAX		
4053	REF	5 LAST 694	31,6565	22674 1		TWO(-2)		

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4054			31,6566	70774 1	DAD	2	
4055			31,6567	61653 0	BDDV	SQRT	
4056			31,6570	47176 1	COMP		
4057	REF	6 LAST 694	31,6571	22674 1		TWO(-2)	
4058			31,6572	00015 0		12D	PD14,15 B0 TAN(TH/2)
4060			31,6573	56774 0	TSRT	2	
4061			31,6574	61732 0	BDDV	DSU	
4062			31,6575	56712 0	TSRT	DDV	
4063	REF	2 LAST 694	31,6576	15706 1		R400K	
4064			31,6577	00002 0		1	
4065			31,6600	00005 1		4D	
4066	REF	7 LAST 695	31,6601	22674 1		TWO(-2)	
4067			31,6602	00002 0		1	
40671			31,6603	00007 0		6D	
4069			31,6604	47575 0	NOLOD	1	
4070			31,6605	73726 0	BMN	BDSU	
40701	REF	4 LAST 694	31,6606	22457 1		TFFMAX	
4071	REF	8 LAST 695	31,6607	22674 1		TWO(-2)	
4072			31,6610	70774 1	DAD	2	
4073			31,6611	61653 0	BDDV	SQRT	
4074			31,6612	47176 1	COMP		
4075	REF	9 LAST 695	31,6613	22674 1		TWO(-2)	
4076			31,6614	00021 1		16D	TAN(TH1/2) PD18,19
4078			31,6615	56775 1	TSRT	1	
4079			31,6616	70776 0	DAD		
4080			31,6617	00011 1		8D	
4081			31,6620	00002 0		1	
4082	REF	10 LAST 695	31,6621	22674 1		TWO(-2)	
4083			31,6622	66775 1	DSU	1	
4084			31,6623	73722 1	BMN	DMP	
4085			31,6624	00023 0		18D	
4086			31,6625	00017 1		14D	
40865	REF	1	31,6626	22665 1		TFF0	(1+DEL/4) (TANTH1/2)-TAN(TH/2))
4088			31,6627	51175 0	DSQ	1	
4089			31,6630	64776 0	DMP		
4090			31,6631	00023 0		18D	
4091			31,6632	00023 0		18D	(TAN(TH1/2))CUBED PD22,23
4092			31,6633	51175 0	DSQ	1	
4093			31,6634	64726 0	DMP	BDSU	
4094			31,6635	00017 1		14D	
4095			31,6636	00017 1		14D	PD22,23 B0
4097			31,6637	56774 0	TSRT	2	

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4098			31,6640	65722 0	BDSU	DMP
4099			31,6641	70776 0	DAD	
5000			31,6642	00011 1		8D
5001			31,6643	00002 0		1
5002	REF	1	31,6644	22676 0		DP1/3S
5003			31,6645	77777 0		-
5005			31,6646	00025 0		20D
					B-2	PD22,23
5006			31,6647	64773 0	DMP	3
5007			31,6650	63653 1	TSLT	SQRT
5008			31,6651	64722 1	DMP	DMP
5009			31,6652	56771 0	TSRT	RTB
5010			31,6653	00013 0		10D
5011	REF	5 LAST 693	31,6654	22307 0		1/MUE
5012			31,6655	00002 0		1
5013			31,6656	00013 0		10D
5014			31,6657	00027 1		22D
5015			31,6660	00010 0		7D
5016	REF	17 LAST 693	31,6661	20265 1		FRESHPD
5017	REF	15 LAST 693	31,6662	33457 1	STORE	TFF
5018			31,6663	40576 1	ITCQ	0
5019			31,6664	45175 0	TFF0	DMOVE 1
5020			31,6665	76576 1		RTB
5021	REF	9 LAST 473	31,6666	05174 0		ZERODP
5022	REF	18 LAST 696	31,6667	20265 1		FRESHPD
5023	REF	16 LAST 696	31,6670	33457 1	STORE	TFF
5024			31,6671	40576 1	ITCQ	0
50291			31,6672	40576 1	ITCQ	0
5032			31,6673	20000 0	TWO(-2)	2DEC .5
C5032			31,6674	00000 1		
5033			31,6675	05252 1	DP1/3S	2DEC .3333333333 B-1
C5033			31,6676	25253 1		

6778

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8
16
32
128
256

447

L DUMMY 501 INITIALISATION

USER'S OWN PAGE NO. 1

0001				33,7407		BANK	33	
00012	REF 169 LAST 687	33,7407	0 5654 0	BEGINNER	TC	BANKCALL		CHANGE IMUMODE AS REQUIRED.
00013	REF 4 LAST 619	33,7410	30216 1	CADRMODE	CADR	IMUREENT		
0002	REF 89 LAST 687	33,7411	0 4000 0	BEGIN501	TC	INTPRET		
0003		33,7412	75175 0		VMOVE	1		
0004		33,7413	76776 0		ITC			
0005	REF 23 LAST 694	33,7414	00766 0			RN		
0006	REF 6 LAST 610	33,7415	21643 0			CALCGRAV		
00061		33,7416	77576 0		EXIT	0		
0007	REF 26 LAST 619	33,7417	0 2276 0		TC	PHASCHNG		SETUP SOME PHASE INFO.
00072		33,7420	00105 0	EXITLOC2	OCT	00105		5.1 MODE GOES WITH READACCS.
0008		33,7421	2 0017 0		INHINT			
0009	REF 29 LAST 621	33,7422	4 0036 0		CS	TIME1		
0010	REF 1	33,7423	6 7440 0		AD	STARTDT1		
0011	REF 114 LAST 622	33,7424	0 2173 0		TC	WAITLIST		
0012	REF 6 LAST 622	33,7425	65152 1		CADR	READACCS		
0013	REF 30 LAST 697	33,7426	4 0036 0		CS	TIME1		SPARE START ROUTINE
0014	REF 1	33,7427	6 7441 1		AD	STARTDT2		
0015	REF 115 LAST 697	33,7430	0 2173 0		TC	WAITLIST		
0016	REF 1	33,7431	67442 1		CADR	START2		
0017	REF 104 LAST 619	33,7432	0 2124 1		TC	ENDOFJOB		
00171	REF 170 LAST 697	33,7433	0 5654 0	BEGIN5W	TC	BANKCALL		WAIT FOR MODE SWITCH IF NECESSARY.
00172	REF 35 LAST 619	33,7434	30331 0		CADR	IMUSTALL		
00173		33,7435	0 7435 1		TC			
00174	REF 105 LAST 697	33,7436	0 2124 1		TC	ENDOFJOB		
00179		33,7437	00000 1		DEC	0		HOLE FOR 2DEC PATCHING STARTDT1 -1
0018		33,7440	00310 0	STARTDT1	DEC	200		
0019		33,7441	01476 0	STARTDT2	DEC	830		
0020	REF 4 LAST 615	33,7442	3 2162 0	START2	CAF	PRI027		
0021	REF 31 LAST 622	33,7443	0 2046 1		TC	FINDVAC		
0022	REF 3 LAST 259	33,7444	64336 0		CADR	S4BSMSEP		
0023	REF 92 LAST 623	33,7445	0 2256 1		TC	TASKOVER		

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 1

0001 27,6000 SETLOC 56000

R0002 THE PIPUP SECTION IS A TASK WHICH READS THE PIPAS EVERY .5
 R0003 SECONDS. ACCELERATION HISTORY OVER THE LAST TWO SECONDS (FOUR READINGS)
 R0004 IS MAINTAINED IN THE XPIPBUR, YPIPBUR, AND ZPIPBUR REGISTERS. EACH PIPA
 R0005 READING IS SUMMED INTO THE XPIPSUM ETC. REGISTERS, AND EVERY FOURTH READ
 R0006 ING AVERAGE G IS CALLED TO USE THE SUMMED READINGS TO UPDATE POSITION
 R0007 AND VELOCITY AND SET THE PIPSUM REGISTERS TO ZERO.

R0014 GOES THRU PIPUP ONLY EVERY 2 SEC. (ELSEWHERE MORE OFTEN.)

00143	REF	3 LAST 580	27,6000	61364 1		CADR	REPIPASR	
00145			27,6001	3 6000 1	REPIPUP	CAF	-1	
00147	REF	2 LAST 579	27,6002	0 6005 1		TC	PIPUP + 1	REREAD PIPAS IF NECESSARY.
0015	REF	4 LAST 622	27,6003	61313 1		CADR	PIPASR	
0016			27,6004	3 6003 1	PIPUP	CAF	-1	
0017	REF	4 LAST 620	27,6005	0 5750 0		TC	ISWCALL	GO TO PIPAREAD SUBROUTINE.
0018	REF	2 LAST 626	27,6006	3 3535 1		CAF	THIRTN	PICK UP AT RED05.13
00181	REF	66 LAST 623	27,6007	0 2312 0		TC	NEWPHASE	
00182			27,6010	00005 1		OCT	5	5.13 RESTART. (NO TIME CALL.)
00188	REF	1	27,6011	3 7200 1	RED05.13	CAF	DT	
0019	REF	116 LAST 697	27,6012	0 2173 0		TC	WAITLIST	
0020	REF	3 LAST 698	27,6013	56004 0		CADR	PIPUP	
00202	REF	11 LAST 623	27,6014	4 1465 0		CS	PIPTIME + 1	
00205	REF	8 LAST 621	27,6015	5 0667 0		TS	TBASE5	SAVE NEW TIME.
0022	REF	1	27,6016	3 6032 0		CAF	IPIPD	
0023	REF	117 LAST 698	27,6017	0 2173 0		TC	WAITLIST	
0024	REF	1	27,6020	57147 1		CADR	INTERPIP	READ ACCELERATION MORE OFTEN.
0026	REF	2 LAST 579	27,6021	3 2152 0		CAF	PRI016	
0027	REF	32 LAST 697	27,6022	0 2046 1		TC	FINDVAC	
0028	REF	2 LAST 132	27,6023	56033 1		CADR	ENTRYTOP	
0035	REF	92 LAST 684	27,6024	3 5503 1		CAF	TWO	
0036	REF	1	27,6025	5 1414 1		TS	PIPCTR	
00362	REF	2 LAST 573	27,6026	3 3536 1		CAF	FOURTN	THIS WILL PICK UP AT ENTRYTOP + 3.
00364	REF	67 LAST 698	27,6027	0 2312 0		TC	NEWPHASE	
00366			27,6030	00005 1		OCT	5	5.14 RESTART.
0037	REF	93 LAST 697	27,6031	0 2256 1		TC	TASKOVER	

0041 27,6032 00062 0 IPIPD DEC 50

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 2

P0042 JOB WHICH PROCESSES PIPA READINGS TO UPDATE POSITION AND VELOC

0043	REF	1		27,6033	3 1350 0	ENTRYTOP	XCH	TENTRY	UPDATE ENTRY TIME.
0044	REF	93	LAST 698	27,6034	6 5503 1		AD	TWO	
0045	REF	2	LAST 699	27,6035	3 1350 0		XCH	TENTRY	IN SECS SINCE START OF ENTRY.
0046	REF	220	LAST 622	27,6036	3 4516 1		CAF	ONE	
0047	REF	3	LAST 579	27,6037	5 1035 0		TS	PIPAGE	
0048	REF	13	LAST 456	27,6040	4 1001 0		CS	DELVX	
0049	REF	1		27,6041	5 1403 1		TS	XPIPBUF + 3	
0050	REF	10	LAST 346	27,6042	4 1003 1		CS	DELVY	
0051	REF	1		27,6043	5 1407 0		TS	YPIPBUF + 3	
0052	REF	8	LAST 346	27,6044	4 1005 1		CS	DELVZ	SAVE PIP COUNTS.
0053	REF	1		27,6045	5 1413 0		TS	ZPIPBUF + 3	
00581	REF	27	LAST 697	27,6046	0 2276 0		TC	PHASCHNG	
00582				27,6047	01705 1		OCT	01705	5.15 RESTART PICKS UP AT REFAZE4.
00586	REF	171	LAST 697	27,6050	0 5654 0		TC	BANKCALL	COMPENSATE THE PIPA DATA
00587	REF	4	LAST 581	27,6051	31017 0		CADR	1/PIPA	
0059	REF	90	LAST 697	27,6052	0 4000 0	REFAZE4	TC	INTPRET	
0060				27,6053	76776 0		ITC	0	GO TO AVERAGE G INTEGRATION ROUTINES TO
0061	REF	2	LAST 581	27,6054	21551 0			CALCRVG	USE PIPA READINGS TO UPDATE POSITION AND
A0062									VELOCITY.
00622	REF	28	LAST 699	27,6055	0 2276 0		TC	PHASCHNG	
00623				27,6056	02105 1		OCT	02105	5.17 RESTART AT REFAZE8.
00625	REF	91	LAST 699	27,6057	0 4000 0	REFAZE8	TC	INTPRET	

- 2

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 3

P0063 PROCESS AVERAGE G OUTPUT...SCALE IT AND GET INPUT DATA

0064			27,6060	75776 0	SCALEPOP VXSC	0	
0065	REF	1	27,6061	00774 0		VPIR	KVSCALE = (12800/.3048)0(25766.1973 X2)
0066	REF	1	27,6062	21132 1		KVSCALE	KVSCALE = .81491944
0067	REF	1	27,6063	33315 0	STORE	(V)	V VECTOR
0068			27,6064	43574 0	TEST	2	
0069			27,6065	41766 0	VXV	VXSC	(VREL) = (V) + KWE UNITR*UNITW
0070			27,6066	50776 1	VAD		
0071	REF	1	27,6067	00010 0		RELVELSW	SWITCH NUMBER.
0072	REF	1	27,6070	16077 0		GETUNITV	
0073	REF	16 LAST 652	27,6071	01016 1		UNITR	
0074	REF	4 LAST 654	27,6072	01044 0		UNITW	
0075	REF	1	27,6073	21154 1		KWE	
0076	REF	2 LAST 700	27,6074	01315 1		(V)	
0077	REF	3 LAST 700	27,6075	33315 0	STORE	(V)	NEW V VECTOR IS RELATIVE.
0078			27,6076	47575 0	GETUNITV NOLOD	1	
0079			27,6077	73176 0	UNIT		
0080	REF	1	27,6100	33570 0	STORE	UNITV	HALF MAX, OF COURSE.
0081			27,6101	63776 1	TSLT	0	
0082			27,6102	00035 1		28D	RESCALE MAGNITUDE SQUARED.
0083			27,6103	00003 1		2	SHIFT COUNT. (2 BECAUSE HALF-LEN SQRD
0084	REF	1	27,6104	33343 0	STORE	VSQUARE	VELOCITY SQUARED. (NORMAL SCALING)
0085			27,6105	66776 1	DSJ	0	LEQ = VSQUARE-1
0086	REF	2 LAST 700	27,6106	01343 1		VSQUARE	4 G-5 FULL SCALE
0087	REF	2 LAST 384	27,6107	21055 1		FOURTH	
0088	REF	1	27,6110	33432 1	STORE	LEQ	
0089			27,6111	63776 1	TSLT	0	
0090			27,6112	00037 0		30D	
0091			27,6113	00002 0		1	
0092	REF	2 LAST 546	27,6114	33620 0	STORE	V	
0093			27,6115	42775 1	DOT	1	
0094			27,6116	63776 1	TSLT		
0095	REF	4 LAST 700	27,6117	01315 1		(V)	RDOT = V*UNITR
0096	REF	17 LAST 700	27,6120	01016 1		UNITR	
0097			27,6121	00002 0		1	AND SCALE BACK UP, UNITS ARE 1/2.
0098	REF	1	27,6122	33347 1	STORE	RDOT	

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 4

0099			27,6123	45176 0	DMOVE	0	SAVE OLD DRAG VALUE.
0100	REF	1	27,6124	01363 0		D	
0101	REF	1	27,6125	33416 1	STORE	DOLD	
0102			27,6126	71174 0	ABVAL	2	
0103			27,6127	63722 0	TSLT	DMP	
0104			27,6130	47776 1	BZE		
0105	REF	19 LAST 644	27,6131	01002 1		DELV	KASCALE=5.85 16384/(4 .3048 805 100)
0106			27,6132	00003 1		2	2 FOR 2 SEC, 3 FOR 1 SEC, 4 FOR .5 --
0107	REF	1	27,6133	21134 1		KASCALE	= 3. /4 /25
0108	REF	1	27,6134	21024 1		SETMIND	
0109	REF	2 LAST 701	27,6135	33363 1	STORE	D	ACCELERATION (DRAG, ALMOST)
0110			27,6136	41775 1	GETUNI	VXV	UNI = UNIT(V*R)
0111			27,6137	73176 0		UNIT	
0112	REF	5 LAST 700	27,6140	01315 1		(V)	COULD USE UNITV.
0113	REF	18 LAST 700	27,6141	01016 1		UNITR	
0114	REF	1	27,6142	33562 0	STORE	UNI	INERTIAL OR RELATIVE AS IS (V).
R0115	SOME OF THE FOLLOWING TARGETTING MIGHT BE DONE LESS OFTEN THAN ABOVE.						
0116			27,6143	43575 1	TEST	1	THIS TEST MIGHT BE COMBINED WITH THE
0117			27,6144	45176 0	DMOVE		PREVIOUS ONE IF ALL CALCULATIONS ARE
0118	REF	2 LAST 700	27,6145	00010 0		RELVELSW	DONE EVERY CYCLE.
0119	REF	1	27,6146	20773 0		GETETA	
0120	REF	12 LAST 698	27,6147	01465 1		PIPTIME	
0121	REF	8 LAST 654	27,6150	33145 1	STORE	DTEAROT	

L	RE-ENTRY CONTROL					USER'S OWN PAGE NO. 5		
0122				27,6151	76776 0	UPDATERT ITC	0	UPDATE PREDICTED TARGET VECTOR RT
0123	REF	3 LAST 655		27,6152	13463 1		EARROT2	
0124				27,6153	47575 0		NOLOD 1	
0125				27,6154	42771 0		DOT RTB	SINCE (RT) UNIT VEC, THIS IS 1/4 MAX.
0126	REF	2 LAST 701		27,6155	01562 1		UNI	LATANG = RT.UNI
0127	REF	19 LAST 696		27,6156	20265 1		FRESHPD	
0128	REF	1		27,6157	33113 1	STORE	LATANG	LATANG = MAC LATANGLE/4 (NO 2 PI)
A0129								UNUSUAL SCALING FOR LATANG. (= ASIN L.
0130				27,6160	42773 1	GETANGLE DOT	3	THETA = ARCCOS(RT.UNITR)
0131				27,6161	66616 0		DSJ BPL	RT IS UNIT VECTOR
0132				27,6162	70716 0		DAD TSLT	
0133				27,6163	61176 0		ACOS	
0134	REF	2 LAST 654		27,6164	01215 0		RT	
0135	REF	19 LAST 701		27,6165	01016 1		UNITR	
0136	REF	1		27,6166	21064 0		NEAR1/4	TO IMPROVE ACCURACY, CALC RANGE BY
0137	REF	1		27,6167	21031 0		TINYTHET	TINYTHET IF HIGH ORDER PART OF
0138	REF	2 LAST 702		27,6170	21064 0		NEAR1/4	ARCCOS ARGUMENT IS ZERO
0139				27,6171	00002 0		1	
0140	REF	2 LAST 546		27,6172	33111 0	STORE	THETAH	
01402				27,6173	77576 0	EXIT	0	
01404	REF	29 LAST 699		27,6174	0 2276 0	REFAZE10 TC	PHASCHNG	
01405				27,6175	02205 1	OCT	02205	5.18 RESTART AT REFAZE10
01407	REF	92 LAST 699		27,6176	0 4000 0	TC	INTPRET	

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 6

P0141 JUMP TO PARTICULAR RE-ENTRY PHASE.

0142		27,6177	44576 0	SEQUENCE ITCI	0	BRANCHES TO VARIOUS CONTROL PHASES. ADDRESS OF PHASE EQS STORED HERE.
0143	REF 1	27,6200	01375 1		GOTOADDR	

R0144 GOTOADDR CONTAINS THE ADDRESS OF THE ROLL COMMAND EQUATIONS
R0145 APPROPRIATE TO THE CURRENT PHASE OF RE-ENTRY. SEQUENCING IS AS FOLLOWS:

R0146 INITROLL SET HERE INITIALLY. HOLDS INITIAL ROLL ATTITUDE UNTIL KAT EX-
R0147 CEEDED. THEN HOLDS NEW ROLL ATTITUDE UNTIL VRTHRESH EXCEEDED.
R0148 THEN BRANCHES TO

R0149 HUNTEST THIS SECTION CHECKS TO SEE IF THE PREDICTED RANGE AT NOMINAL
R0150 L/D FROM PRESENT CONDITIONS IS LESS THAN THE DESIRED RANGE
R0151 IF NOT-- A ROLL COMMAND IS GENERATED BY THE CONSTANT DRAG
R0152 CONTROLLER.
R0153 IF SO-- CONTROL AND GOTOADDR ARE SET TO UPCTRL
R0154 USUALLY NO ITERATION IS INVOLVED EXCEPT IF THE RANGE DESIRED IS
R0155 TOO LONG ON THE FIRST PASS THRU HUNTEST.

R0156 UPCTRL CONTROLS ROLL DURING THE SUPER-CIRCULAR PHASE. UPCTRL IS TERM
R0157 INATED EITHER (A) WHEN THE DRAG (AS MEASURED BY THE PIPAS)
R0158 FALLS BELOW Q7 OR (B) IF RDOT IS NEGATIVE AND REFERENCE VL
R0159 EXCEEDS V. IN CASE (A), GOTOADDR IS SET TO KEP2 AND IN (B) TO
R0160 PREDICT3, SKIPPING THE KEPLER PHASE OF ENTRY.

R0161 KEP2 GOTOADDR IS SET HERE DURING THE KEPLER PHASE TO MONITOR DRAG.
R0163 SPACECRAFT IS INSTANTANEOUSLY TRIMMED IN PITCH AND YAW TO THE
R0164 COMPUTED RELATIVE VELOCITY VECTOR. THE LAST COMPUTED ROLL
R0165 ANGLE IS MAINTAINED. WHEN THE MEASURED DRAG EXCEEDS Q7+.5,
R0166 GOTOADDR IS SET TO

R0167 PREDICT3 THIS CONTROLS THE FINAL SUB-ORBITAL PHASE. ROLL COMMANDS CEASE
R0168 WHEN V IS LESS THAN VQUIT. AN EXIT IS MADE TO TERMALT WHEN
R0169 TERMINAL ALTITUDE IS REACHED.

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 7

P0180 OUT OF SEQUENCE SUBSECTION TO COMPUTE ETA.

01805				30,6772		BANK	30	
0181				30,6772	43575 1	GETETA	TEST	1
0182				30,6773	64776 0		DMP	
0183	REF	1		30,6774	00011 1			EGSW
0184	REF	1		30,6775	21010 0			SUBETA
0185	REF	3	LAST 702	30,6776	01111 1			THETAH
0186	REF	1		30,6777	21136 0			KTETA
0187	REF	1		30,7000	33357 0		STORE	ETA
								NOT USED AT LOW VEL WHERE THETA NEG.
								BRANCHES IF INTO EQ. GLIDE PHASE.
								= 1000X2PI/(2)E14 163.84
								DONT REALLY WANT IT, BUT NO PUSH WANTED
0188				30,7001	47575 0	GETETA2	NOLOD	1
0189				30,7002	70776 0		DAD	
0190	REF	13	LAST 701	30,7003	01465 1			PIPTIME
0191	REF	9	LAST 701	30,7004	33145 1		STORE	DTEAROT
0192				30,7005	76776 0		ITC	0
0193	REF	1		30,7006	16152 0			UPDATERT
0194				30,7007	66775 1	SUBETA	DSU	1
0195				30,7010	43611 0		BPL	SWITCH
0196	REF	3	LAST 700	30,7011	01620 1			V
0197	REF	3	LAST 700	30,7012	21055 1			FOURTH
0198	REF	1		30,7013	21016 0			SUBETA2
0199	REF	3	LAST 701	30,7014	00010 0			RELVELSW
								SHOULD CHANGE TO OFF (NON-BRANCH) STATE
0200				30,7015	64775 0	SUBETA2	DMP	1
0201				30,7016	62772 1		DDV	ITC
0202	REF	4	LAST 704	30,7017	01111 1			THETAH
0203	REF	1		30,7020	21140 1			KT
0204	REF	4	LAST 704	30,7021	01620 1			V
0205	REF	1		30,7022	21002 0			GETETA2
								KT = RE(2 PI)/ 2 VS 16384 163.84 /2 VSAT
0206				30,7023	45176 0	SETMIND	DMOVE	0
0207	REF	1		30,7024	21061 0			1BITDP
0208	REF	3	LAST 701	30,7025	33363 1		STORE	D
								MAKE D NON-ZERO.
0209				30,7026	76776 0		ITC	0
0210	REF	1		30,7027	16137 0			GETUNI
0211				30,7030	47573 0	TINYTHET	NOLOD	3
0212				30,7031	66723 1		DSJ	ABS
0213				30,7032	63653 1		TSLT	SQRT
0214				30,7033	64776 0		DMP	
0215	REF	2	LAST 704	30,7034	21062 0			1BITDP + 1
0216				30,7035	00016 0			13D
0217	REF	1		30,7036	21156 0			KACOS
0218	REF	5	LAST 704	30,7037	33111 0		STORE	THETAH
								ENTER WITH X=.249
								GET 1/4 - MPAC
								SCALE UP BEFORE SQRT.
								HAS FACTOR FOR UP SCALING.
								X = SQRT(2(1-COSX)), IN RADIANS
								X/2PI=(1/64PI)(SQRT(((1-COSX)/4)2EXP13)
02181				30,7040	76576 1		RTB	0
								OFF TO PRE-SEQUENCER...

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 8

02182 REF 2 LAST 133 30,7041 16175 0

REFAZE10

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 9

P02183 MAINTAINS INITIAL ROLL UNTIL D = KAT, GOES INTO HUNTEST WHEN
 R02184 RDOT = VRCONT.

02186				31,6677		BANK	31	
021865	REF	1		31,6677	56475 1	KEPCADR1	CADR	KEP2
02187	REF	1		31,6700	63007 0	HUNTCADR	CADR	HUNTEST
0219				31,6701	45176 0	INITROLL	DMOVE	0
02192	REF	2	LAST 581	31,6702	01576 1			INITL/D
02194	REF	1		31,6703	33223 1		STORE	L/D
02196				31,6704	43574 0		TEST	2
0220				31,6705	66756 0		DSJ	BMN
0221				31,6706	77576 0		EXIT	
R02215								
								IF D-.05 G NEG, GO TO LIMITL/D
								IF NOT, SET .05 G SWITCH FOR SCS
0222	REF	1		31,6707	00020 0			INRLSW
0223	REF	1		31,6710	22770 1			INITRL1
02231	REF	4	LAST 704	31,6711	01363 0			D
02232	REF	1		31,6712	21142 0			.05G
02233	REF	1		31,6713	16740 0			LIMITL/D
0224	REF	13	LAST 623	31,6714	0 3373 0	TC	RELAYON	SEND .05 G SIGNAL TO SCS.
0225				31,6715	40100 1	OCT	40100	
0226	REF	39	LAST 623	31,6716	0 2362 1	TC	NEWMODE	SET MODE TO AFTER .05 G STATE.
0227				31,6717	00064 0	OCT	00064	
0228	REF	93	LAST 702	31,6720	0 4000 0	TC	INTPRET	
022802				31,6721	45176 0	DMOVE	0	MAY WANT THIS IN UPDWTST FOR 278
022804	REF	2	LAST 581	31,6722	21144 0		LAD	
022805	REF	2	LAST 706	31,6723	33223 1	STORE	L/D	
022806				31,6724	47576 0	NOLOD	0	
022807	REF	3	LAST 706	31,6725	33576 0	STORE	INITL/D	
022808				31,6726	42574 1	SWITCH	2	IF V-VFINAL NEG, GO TO FINAL PHASE
02281				31,6727	66616 0	DSJ	BPL	
022812				31,6730	77576 0	EXIT		
022814	REF	2	LAST 706	31,6731	00020 0		INRLSW	
022816	REF	5	LAST 704	31,6732	01620 1		V	
022818	REF	1		31,6733	21230 0		VFINAL	
02282	REF	1		31,6734	22743 1		UPDWTST	
022822	REF	1		31,6735	3 6677 1	CAF	KEPCADR1	
022824	REF	2	LAST 703	31,6736	5 1374 0	TS	GOTOADDR	

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 10

022826	REF	94 LAST 706	31,6737	0 4000 0	TC	INTPRET	
022828			31,6740	76776 0	ITC	0	
02283	REF	2 LAST 706	31,6741	16740 0		LIMITL/D	
022832			31,6742	62776 0	UPDWNTST DDV	0	
022834	REF	2 LAST 700	31,6743	01347 0		RDOT	
022836	REF	6 LAST 706	31,6744	01620 1		V	RESULT INTO PD
022838			31,6745	47571 1	NOLOD	5	IF V-VFINAL+K(RDOT/V)CUBED POS,L/D=-LAD
02284			31,6746	51122 1	DSQ	DMP	
022842			31,6747	62732 0	DDV	DSU	
022844			31,6750	70746 0	DAD	BOV	
022846			31,6751	73605 0	BMN	LODON	
022848			31,6752	47176 1	COMP		
02285			31,6753	77777 0		-	
022854	REF	1	31,6754	21226 1		K44	
022856	REF	2 LAST 706	31,6755	21230 0		VFINAL	
022858	REF	7 LAST 707	31,6756	01620 1		V	
02286	REF	3 LAST 707	31,6757	16740 0		LIMITL/D	
022862	REF	4 LAST 707	31,6760	16740 0		LIMITL/D	
022864	REF	3 LAST 706	31,6761	21144 0		LAD	
02287	REF	4 LAST 706	31,6762	33576 0	STORE	INITL/D	
022872			31,6763	47576 0	NOLOD	0	
022875	REF	3 LAST 706	31,6764	33223 1	STORE	L/D	
02288			31,6765	76776 0	ITC	0	
022885	REF	5 LAST 707	31,6766	16740 0		LIMITL/D	
0229			31,6767	66774 0	INITRL1	DSJ	2
0230			31,6770	43605 0		BPL	LODON
0231			31,6771	45176 0		DMOVE	
0232	REF	1	31,6772	21232 1		KAT	
0233	REF	5 LAST 706	31,6773	01363 0		D	
0234	REF	1	31,6774	23000 0		VRTHRES	
0236	REF	4 LAST 707	31,6775	21144 0		LAD	WHEN D GREATER THAN KAT, L/D = LAD
0237	REF	4 LAST 707	31,6776	33223 1	STORE	L/D	
0238			31,6777	70775 0	VRTHRES	DAD	1
0239			31,7000	73775 0		BMN	EXIT
0240	REF	3 LAST 707	31,7001	01347 0		RDOT	IF RDOT + VRCONT NEG, GO TO STEER
0241	REF	1	31,7002	21172 0		VRCONT	IF POS, SET SELECTOR TO HUNTEST.
0242	REF	6 LAST 707	31,7003	16740 0		LIMITL/D	DO LATERAL CONTROL IF NEEDED.
A0243							SPACER.
0244	REF	1	31,7004	3 6700 0	CAF	HUNTCADR	
0245	REF	3 LAST 706	31,7005	5 1374 0	TS	GOTOADDR	AND FALL THRU INTO HUNTEST.

$$67 = \frac{7}{16} = \frac{32}{55}$$

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 11

P0246 ... HUNTEST SECTION... CHECKS TO SEE WHEN PREDICTED RANGE = DESIRED ONE

A02465 KEEP WITH ABOVE CODING.....

Line	REF	Label	Address	Value	Operation	Comment
0247	REF	95 LAST 707	31,7006	0 4000 0	TC	INTPRET
0248			31,7007	45176 0	HUNTEST	DMOVE 0
0249	REF	1	31,7010	21051 0		LEWD1
0250	REF	1	31,7011	33341 1	STORE	LEWD
0251			31,7012	66774 0	DSJ	2
0252			31,7013	73605 0	BMN	LODON
02525			31,7014	45176 0	DMOVE	
0253	REF	6 LAST 707	31,7015	01363 0		D
0254	REF	1	31,7016	21122 0		C20
0255	REF	1	31,7017	23026 1		HUNTESTA
02555	REF	1	31,7020	21053 1		LEWD2
0256	REF	2 LAST 708	31,7021	33341 1	STORE	LEWD
02562			31,7022	45176 0	DMOVE	0
02564	REF	7 LAST 708	31,7023	01363 0		D
02566	REF	1	31,7024	33101 1	STORE	A1
						A1 = D
0257			31,7025	45176 0	HUNTESTA	DMOVE 0
0258	REF	5 LAST 707	31,7026	21144 0		LAD
0259	REF	1	31,7027	33421 0	STORE	TEM1B
						IF RDOT POS, TEM1B = LAD
0260			31,7030	73775 0	BMN	1
0261			31,7031	41423 1	LODON	DMOVE
0262	REF	4 LAST 707	31,7032	01347 0		RDOT
0263	REF	1	31,7033	23037 1		AOCALC
0264	REF	3 LAST 708	31,7034	01341 0		LEWD
0265	REF	2 LAST 708	31,7035	33421 0	STORE	TEM1B
0266			31,7036	62775 0	AOCALC	DDV 1
0267			31,7037	70776 0	DAD	
0268	REF	5 LAST 708	31,7040	01347 0		RDOT
0269	REF	3 LAST 708	31,7041	01421 1		TEM1B
0270	REF	8 LAST 707	31,7042	01620 1		V
0271	REF	1	31,7043	33365 1	STORE	V1
						V1 = V + RDOT/TEM1B
0272			31,7044	51173 0	DSJ	3
0273			31,7045	62712 1	DDV	DDV
0274			31,7046	70722 1	DAD	DMP
0275			31,7047	64712 1	DMP	DDV
0276	REF	6 LAST 708	31,7050	01347 0		RDOT
0277	REF	4 LAST 708	31,7051	01421 1		TEM1B
0278	REF	1	31,7052	21220 1		2C1HS
0279	REF	8 LAST 708	31,7053	01363 0		D
0280	REF	2 LAST 708	31,7054	01365 0		V1
						A0 = (V1/V) SQ(D0 + RDOT SQ/(TEM1B 2 C1 HS))

L RE-ENTRY CONTROL

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0281	REF	3 LAST 708	31,7055	01365 0		V1	
0282	REF	3 LAST 700	31,7056	01343 1		VSQUARE	
0283	REF	1	31,7057	33602 0	STORE	A0	
02832			31,7060	43776 0	BPL	0	IF RDOT NEG, A1 = A0
02834	REF	7 LAST 708	31,7061	01347 0		RDOT	
02836	REF	1	31,7062	23067 1		TESTHSW	
02837			31,7063	45176 0	DMOVE	0	
02838	REF	2 LAST 709	31,7064	01602 1		A0	
02839	REF	2 LAST 708	31,7065	33101 1	STORE	A1	
0284			31,7066	43575 1	TESTHSW	TEST	1
0285			31,7067	42576 0	SWITCH		
0286	REF	1	31,7070	00012 1		HUNTSW1	
028702	REF	1	31,7071	23106 1		HUNTEST1	
028704	REF	2 LAST 709	31,7072	00012 1		HUNTSW1	
028706			31,7073	45176 0	DMOVE	0	
028708	REF	2 LAST 384	31,7074	21057 0		3ZEROS	
02871	REF	1	31,7075	33325 0	STORE	DIFFOLD	
028712			31,7076	70776 0	DAD	0	
028714	REF	4 LAST 709	31,7077	01365 0		V1	
028716	REF	1	31,7100	21066 1		C18	
028718	REF	1	31,7101	33371 1	STORE	V1OLD	
02872			31,7102	45176 0	DMOVE	0	
028722	REF	1	31,7103	21104 1		Q7F	
028724	REF	1	31,7104	33327 1	STORE	Q7	
028726			31,7105	64774 1	HUNTEST1	DMP	2
0288			31,7106	62771 1	DDV	RTB	
0289			31,7107	62712 1	DDV	DDV	
0290	REF	3 LAST 709	31,7110	01602 1		A0	
0291	REF	2 LAST 708	31,7111	21220 1		2C1HS	
0292	REF	5 LAST 709	31,7112	01365 0		V1	
0293	REF	20 LAST 702	31,7113	20265 1		FRESHPD	
0294	REF	6 LAST 709	31,7114	01365 0		V1	
02945	REF	4 LAST 708	31,7115	01341 0		LEWD	
0295	REF	1	31,7116	33630 1	STORE	ALP	
0296			31,7117	47575 0	NOLOD	1	
0297			31,7120	65706 0	BDSU	BDDV	
0298	REF	11 LAST 693	31,7121	21043 0		NEARONE	
0299	REF	7 LAST 709	31,7122	01365 0		V1	
0300	REF	1	31,7123	33632 0	STORE	FACT1	
0301			31,7124	66775 1	DSU	1	
0302			31,7125	64712 1	DMP	DDV	

64/8 = 52

IF HUNTSW1 ON (BRANCH), GO TO HUNTEST1

ZERO DIFFOLD THE FIRST TIME THRU.

V1OLD = V1 + C18 (500FPS)
MAKES OLD VCORR -500 AND NEW +500 ..
INITIAL VALUE ON VCORR = -500 FPS SO
(INITIAL VALUES IF NEEDED ON 1ST PASS)

Q7 = Q7F

ALP = A0 2HSD/LWD / V1 V1

10

FACT1 = V1 / (1 - ALP)

FACT2 = ALP(ALP - 1) / A0

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 13

0303	REF	2	LAST 709	31,7126	01630 0		ALP	
0304	REF	12	LAST 709	31,7127	21043 0		NEARONE	
0305	REF	3	LAST 710	31,7130	01630 0		ALP	
0306	REF	4	LAST 709	31,7131	01602 1		A0	
0307	REF	1		31,7132	33331 0	STORE	FACT2	
0308				31,7133	64774 1	DMP	2	VL = FACT1(1 - SQRT(ALP + Q7 FACT2))
0309				31,7134	70653 0	DAD	SQRT	
0310				31,7135	65722 0	BDSU	DMP	
0311	REF	2	LAST 709	31,7136	01327 0		Q7	
0312	REF	2	LAST 710	31,7137	01331 1		FACT2	
0313	REF	4	LAST 710	31,7140	01630 0		ALP	
0314	REF	13	LAST 710	31,7141	21043 0		NEARONE	
0315	REF	2	LAST 709	31,7142	01632 1		FACT1	
0316	REF	1		31,7143	33616 0	STORE	VL	
0317				31,7144	47574 1	NOLOD	2	GAMMAL = LEWD(V1-VL)/VL
0318				31,7145	65722 0	BDSU	DMP	
0319				31,7146	62776 0	DDV		
0320	REF	8	LAST 709	31,7147	01365 0		V1	
0321	REF	5	LAST 709	31,7150	01341 0		LEWD	
0322	REF	2	LAST 710	31,7151	01616 1		VL	
0323	REF	1		31,7152	32027 0	STORE	GAMMAL1	GAMMAL1 USED IN UPCTRL
0324				31,7153	66775 1	DSU	1	IF VL-VMIN NEG, GO TO SHORT
0325				31,7154	73776 0	BMN		
0326	REF	3	LAST 710	31,7155	01616 1		VL	
0327	REF	1		31,7156	21106 0		VMIN	
0328	REF	1		31,7157	16532 1		PREFINAL	PREFINAL = SHORT
0329				31,7160	51176 0	DSU	0	VBARS = VL VL
0330	REF	4	LAST 710	31,7161	01616 1		VL	
0331	REF	1		31,7162	33604 0	STORE	VBARS	
0332				31,7163	66775 1	DSU	1	IF VSAT - VL NEG, GO TO CONSTD.
0333				31,7164	73776 0	BMN		
0334	REF	3	LAST 383	31,7165	21174 0		HALVE	VSAT = .5
0335	REF	5	LAST 710	31,7166	01616 1		VL	
0336	REF	1		31,7167	16405 1		BECONSTD	GOTOADDR MAY BE SIDETRACKED.
0337	REF	1		31,7170	33440 1	STORE	DVL	DVL = VSAT - VL
0338				31,7171	45176 0	DMOVE	0	
0339	REF	4	LAST 710	31,7172	21174 0		HALVE	VS = VSAT
0340	REF	1		31,7173	33612 1	STORE	VS	
0341				31,7174	47574 1	NOLOD	2	
0342				31,7175	66756 0	DSU	BMN	IF V1 GREATER THAN VSAT, GO ON.
0343				31,7176	65776 1	BDSU		
0344	REF	9	LAST 710	31,7177	01365 0		V1	
0345	REF	1		31,7200	23207 0		GETDHOOK	

L RE-ENTRY CONTROL						USER'S OWN PAGE NO. 14	
0346	REF	2 LAST 710	31,7201	01440 0		DVL	DVL = DVL - (VSAT-V1) = V1 - VL
0347	REF	3 LAST 711	31,7202	33440 1	STORE	DVL	
0348			31,7203	45176 0	DMOVE	0	
0349	REF	10 LAST 710	31,7204	01365 0		V1	
0350	REF	2 LAST 710	31,7205	33612 1	STORE	VS	VS = V1
0351			31,7206	56773 1	GETDHOOK	TSRT 3	DHOOK = ((1-VS/FACT1)SQ - ALP)/FACT2
0352			31,7207	62726 0		DDV BDSU	
0353			31,7210	63643 0		TSLT DSQ	
0354			31,7211	66712 0		DSJ DDV	
0355	REF	3 LAST 711	31,7212	01612 0		VS	
03552			31,7213	00002 0		1	
0356	REF	3 LAST 710	31,7214	01632 1		FACT1	
0357	REF	5 LAST 710	31,7215	21174 0		HALVE	
0358			31,7216	00002 0		1	
0359	REF	5 LAST 710	31,7217	01630 0		ALP	
0360	REF	3 LAST 710	31,7220	01331 1		FACT2	
0361	REF	1	31,7221	33434 1	STORE	DHOOK	
0362			31,7222	56775 1	TSRT	1	RESCALE BY 32.
0363			31,7223	62732 0	DDV	DSU	
0364	REF	2 LAST 711	31,7224	01434 0		DHOOK	
0365			31,7225	00006 1		5	
03655	REF	3 LAST 710	31,7226	01327 0		Q7	
0366	REF	1	31,7227	21160 0		CHOOK	
0367	REF	1	31,7230	33436 0	STORE	AHOOKDV	
0368			31,7231	47572 1	NOLOD	4	
0369			31,7232	70722 1	DAD	DMP	GAMMAL = GAMMAL1-CH1 DVL SQ(1+AHOOK DVL
0370			31,7233	64722 1	DMP	DMP	/DHOOK VBARS
0371			31,7234	62712 1	DDV	DDV	
0372			31,7235	65756 0	BDSU	BMN	
0373	REF	1	31,7236	21162 1		1/8TH	
0374	REF	1	31,7237	21164 1		CH1	
0375	REF	4 LAST 711	31,7240	01440 0		DVL	
0376	REF	5 LAST 711	31,7241	01440 0		DVL	
0377	REF	3 LAST 711	31,7242	01434 0		DHOOK	
0378	REF	2 LAST 710	31,7243	01604 1		VBARS	
0379	REF	2 LAST 710	31,7244	00027 1		GAMMAL1	
0380	REF	1	31,7245	23450 1		NEGAMA	FIND CONDITIONS FOR GAMMAL = 0.
0381	REF	1	31,7246	33610 0	STORE	GAMMAL	

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 15

P0382 ... PREDICT RANGES FOR EACH PHASE OF TRAJECTORY...

0383			31,7247	51175 0	RANGER	DSQ	1	
0384			31,7250	56726 1		TSRT	BDSU	COSG = 1-GAMMAL SQ/2 , TRUNCATED SERIES
0385	REF	2 LAST 711	31,7251	01610 1			GAMMAL	
0386			31,7252	00003 1			2	
0387	REF	6 LAST 711	31,7253	21174 0			HALVE	
0388	REF	1	31,7254	33606 1		STORE	COSG/2	
0389			31,7255	66773 1		DSU	3	
0390			31,7256	64722 1		DMP	DMP	E=SQRT(1+VBARS-2)VBARS COSG COSG)
0391			31,7257	64716 0		DMP	TSLT	
0392			31,7260	70653 0		DAD	SQRT	
0393	REF	3 LAST 711	31,7261	01604 1			VBARS	
0394	REF	7 LAST 712	31,7262	21174 0			HALVE	
0395	REF	4 LAST 712	31,7263	01604 1			VBARS	
0396	REF	2 LAST 712	31,7264	01606 0			COSG/2	
0397	REF	3 LAST 712	31,7265	01606 0			COSG/2	
0398			31,7266	00003 1			2	MULT BY 4
0399	REF	1	31,7267	21072 1			C1/16	E (E/4 REALLY) INTO PD.
0400			31,7270	64774 1		DMP	2	ASKEP/2 = ARCSIN(VBARS COSG SING/E)
0401			31,7271	64712 1		DMP	DDV	
0402			31,7272	63116 1		ASIN	TSLT	
0403	REF	5 LAST 712	31,7273	01604 1			VBARS	
0404	REF	4 LAST 712	31,7274	01606 0			COSG/2	
0405	REF	3 LAST 712	31,7275	01610 1			GAMMAL	
0406			31,7276	77777 0			-	E FROM PD.
0407			31,7277	00002 0			1	ASKEP INTO PD.
0408			31,7300	64775 0		DMP	1	ASP1 = Q2 + Q3 (VL-Q4) = Q2 + Q3 VL
0409			31,7301	70742 1		DAD	DAD	
0410	REF	6 LAST 710	31,7302	01616 1			VL	
0411	REF	1	31,7303	21076 0			Q3	
0412	REF	1	31,7304	21074 1			Q2	ASP1 + ASKEP INTO PD.
041202			31,7305	64776 0		DMP	0	MODIFY GAMMAL1
041204	REF	3 LAST 711	31,7306	00027 1			GAMMAL1	
041206	REF	1	31,7307	21234 1			POINT8	
041208			31,7310	64775 0		DMP	1	
04121			31,7311	70776 0		DAD		
041212	REF	4 LAST 712	31,7312	01610 1			GAMMAL	
041214	REF	1	31,7313	21236 0			POINT2	
041216	REF	4 LAST 712	31,7314	32027 0		STORE	GAMMAL1	
0413			31,7315	51173 0		DSQ	3	ASPUP = -C12 LOG(V1 V1 Q7/VBARS D)/GAMMAL1
0414			31,7316	64712 1		DMP	DDV	
0415			31,7317	62771 1		DDV	RTB	
0416			31,7320	64712 1		DMP	DDV	
0417	REF	11 LAST 711	31,7321	01365 0			V1	

L RE-ENTRY CONTROL

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0418	REF	4 LAST 711	31,7322	01327 0		Q7	
0419	REF	6 LAST 712	31,7323	01604 1		VBARS	
0420	REF	5 LAST 710	31,7324	01602 1		A0	
0421	REF	1	31,7325	20437 0		LOG	
0422	REF	1	31,7326	21110 1		C12	
0423	REF	5 LAST 712	31,7327	00027 1		GAMMAL1	ASPUP UNTO PD
0424			31,7330	64775 0	DMP	1	ASPDWN = KC3 RDOT V / A0
0425			31,7331	64712 1	DMP	DDV	
0426	REF	1	31,7332	21166 0		KC3	
0427	REF	8 LAST 709	31,7333	01347 0		RDOT	
0428	REF	9 LAST 708	31,7334	01620 1		V	
0429	REF	6 LAST 713	31,7335	01602 1		A0	ASPDWN INTO PD.
0430			31,7336	66774 0	DSJ	2	ASP3 = Q5(Q6-GAMMAL)
0431			31,7337	64742 1	DMP	DAD	
0432			31,7340	70742 1	DAD	DAD	
0433	REF	1	31,7341	21102 1		Q6	
0434	REF	5 LAST 712	31,7342	01610 1		GAMMAL	ASP = ASP1+ASKEP+ASPUP+ASP3
0435	REF	1	31,7343	21100 0		Q5	ASP INTO PD
0436			31,7344	47575 0	NOLOD	1	
0437			31,7345	65672 1	BDSJ	TSRT	
0438	REF	6 LAST 704	31,7346	01111 1		THETAH	
0439			31,7347	00005 1		4	DIFF = (ASP-THETA)/16
0440	REF	1	31,7350	33225 1	STORE	DIFF	END OF TEST
0441			31,7351	47572 1	NOLOD	4	
0442			31,7352	65132 1	ABS	DSU	IF ABS((THETAH-ASP) - 25NM NEG, GOTOUPSY
0443			31,7353	73615 1	BMN	TEST	IF HIND SET, GO TO GET LV THE REPEATWAY
0444			31,7354	41556 1	LODON	BMN	IF DIFF NEG, GO TO CONSTD
0445			31,7355	41532 0	LODON	DSU	VCORR = V1 - VIOLD
0446	REF	1	31,7356	21124 0		25NM	
0447	REF	1	31,7357	16203 1		GOTOUPSY	
0448	REF	1	31,7360	00013 0		HIND	
0449	REF	1	31,7361	23370 1		GETVCOR	
0450	REF	2 LAST 713	31,7362	01225 0		DIFF	
0451	REF	1	31,7363	16377 0		DCONSTD	SETTING UP DIFFOLD ON THE WAY
0452	REF	12 LAST 712	31,7364	01365 0		V1	
0453	REF	2 LAST 709	31,7365	01371 0		VIOLD	VCORR = V1 - VIOLD
0454	REF	1	31,7366	33600 1	STORE	VCORR	
0455			31,7367	66774 0	GETVCOR	DSJ	
0456			31,7370	56712 0		TSRT	
0457			31,7371	61672 0	BDDV	TSRT	
0460	REF	2 LAST 709	31,7372	01325 1		DIFFOLD	
0461	REF	3 LAST 713	31,7373	01225 0		DIFF	
04615			31,7374	00003 1		2	
0462	REF	2 LAST 713	31,7375	01600 0		VCORR	

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0463	REF	4 LAST 713	31,7376	01225 0		DIFF		
04635			31,7377	00003 1		2		
0464	REF	3 LAST 713	31,7400	33600 1	STORE	VCORR		
04641			31,7401	77576 0	EXIT	0		
04642	REF	30 LAST 702	31,7402	0 2276 0	TC	PHASCHNG		HAVE GROUP 3 PICK UP AT PREHUNT.
04643			31,7403	02003 0	OCT	02003		3.16 RESTART.
04644	REF	1	31,7404	3 7514 0	CAF	ADENEXT		SIDETRACK NEXT PASS UNTIL THIS ONE DONE.
04645	REF	4 LAST 707	31,7405	5 1374 0	TS	GOTOADDR		ONLY AFTER RESTART IS LEFT AFTER DETOUR.
04646	REF	221 LAST 690	31,7406	3 5501 0	CAF	ZERO		
04647	REF	23 LAST 654	31,7407	5 0122 0	TS	OVFIND	2	ZERO OVFINO TO GUARD AGAINST FUTURE BOV
04649	REF	96 LAST 708	31,7410	0 4000 0	TC	INTPRET		
0465			31,7411	47574 1	NOLOD	2		
0466			31,7412	65616 0	BDSU	BPL		IS VCORR - 1000 POS,
0467			31,7413	70776 0	DAD			VCORR = 1000
0468	REF	1	31,7414	21120 1		VCORLIM		
0469	REF	1	31,7415	23421 1		CHKVL		
0470	REF	4 LAST 714	31,7416	01600 0		VCORR		LEAVING VCORLIM IN MPAC
0471	REF	5 LAST 714	31,7417	33600 1	STORE	VCORR		
0472			31,7420	70774 1	CHKVL	DAD	2	
0473			31,7421	66756 0		DSJ	BMN	IF VL + VCORR - VSAT POS, VCORR=VCORR/
0474			31,7422	41472 0		LODON	TSRT	
0475	REF	6 LAST 714	31,7423	01600 0			VCORR	
0476	REF	7 LAST 712	31,7424	01616 1			VL	
0477	REF	8 LAST 712	31,7425	21174 0			HALVE	
0478	REF	1	31,7426	23433 1			GETNUV1	
0479	REF	7 LAST 714	31,7427	01600 0			VCORR	
0480			31,7430	00002 0			1	
0481	REF	8 LAST 714	31,7431	33600 1	STORE	VCORR		
0482			31,7432	70776 0	GETNUV1	DAD	0	
0483	REF	13 LAST 713	31,7433	01365 0			V1	
0484	REF	9 LAST 714	31,7434	01600 0			VCORR	
0485	REF	14 LAST 714	31,7435	33365 1	STORE	V1		
0486			31,7436	45176 0	DMOVE	0		SAVE OLD VALUE OF ASP
0487	REF	5 LAST 714	31,7437	01225 0			DIFF	
0488	REF	3 LAST 713	31,7440	33325 0	STORE	DIFFOLD		
0489			31,7441	43575 1	TEST	1		SET HIND AND GO TO HUNTEST1
0490			31,7442	42572 1	SWITCH	ITC		
0491	REF	2 LAST 713	31,7443	00013 0			HIND	
0492	REF	2 LAST 709	31,7444	23106 1			HUNTEST1	
0493	REF	3 LAST 714	31,7445	00013 0			HIND	

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0494	REF	3 LAST 714	31,7446	23106 1		HUNTEST1	
0495			31,7447	47575 0	NEGAMA	NOLOD	1
0496			31,7450	64722 1		DMP	DMP
0497	REF	8 LAST 714	31,7451	01616 1			VL
0498	REF	1	31,7452	21045 0			1/3RD
							.. AND PUSH DOWN PARTIAL RESULT..
04982			31,7453	64776 0		DMP	0
04984	REF	6 LAST 710	31,7454	01341 0			LEWD
04986	REF	2 LAST 715	31,7455	21045 0			1/3RD
0499			31,7456	70773 0		DAD	3
0500			31,7457	64722 1		DMP	DMP
0501			31,7460	62712 1		DDV	DDV
0502			31,7461	65706 0		BDSU	BDDV
0503	REF	2 LAST 711	31,7462	01436 1			AHOOKDV
0504	REF	1	31,7463	21047 1			1/12TH
0505	REF	6 LAST 711	31,7464	01440 0			DVL
0506	REF	2 LAST 711	31,7465	21164 1			CH1
0507	REF	4 LAST 711	31,7466	01434 0			DHOOK
0508	REF	9 LAST 715	31,7467	01616 1		VL	2 OUT OF ,1 INTO PUSH
0510			31,7470	70776 0		DAD	0
0511	REF	10 LAST 715	31,7471	01616 1			VL
0512	REF	11 LAST 715	31,7472	33616 0		STORE	VL
							VL = VL + DEL VL
0513			31,7473	47573 0		NOLOD	3
0514			31,7474	62726 0		DDV	BDSU
0515			31,7475	51132 0		DSQ	DSU
0516			31,7476	62776 0		DDV	
0517	REF	4 LAST 711	31,7477	01632 1			FACT1
0518	REF	14 LAST 710	31,7500	21043 0			NEARONE
0519	REF	6 LAST 711	31,7501	01630 0			ALP
0520	REF	4 LAST 711	31,7502	01331 1			FACT2
0521	REF	5 LAST 713	31,7503	33327 1		STORE	Q7
05212			31,7504	51176 0		DSQ	0
05213	REF	12 LAST 715	31,7505	01616 1			VL
05214	REF	7 LAST 713	31,7506	33604 0		STORE	VBAR5
0522			31,7507	45176 0		DMOVE	0
0523	REF	3 LAST 709	31,7510	21057 0			3ZEROS
0524	REF	6 LAST 713	31,7511	33610 0		STORE	GAMMAL
							GAMMAL = 0
0525			31,7512	76776 0		ITC	0
0526	REF	1	31,7513	23250 1			RANGER

L RE-ENTRY CONTROL

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05262	REF	1		31,7514	56513 0	ADENDEXT	CADR	ENDEXIT	
052622	REF	4 LAST 621		31,7515	0 3462 1	PREHUNT	TC	STATEUP	SET HUNTSW1 AND HIND SWITCHES
052624				31,7516	00140 1		OCT	00140	
052626	REF	2 LAST 706		31,7517	0 7006 0		TC	HUNTEST -1	4
05264					27,6201		BANK	27	
0527	REF	1		27,6201	56216 1	UPCADR	CADR	UPCONTRL	
0528				27,6202	77576 0	GOTOUPSY	EXIT	0	BACK TO BASIC.
0529	REF	1		27,6203	3 6201 1	HUNTDUMP	CAF	UPCADR	RESET GOTOADDR
05292	REF	5 LAST 714		27,6204	5 1374 0		TS	GOTOADDR	
05295	REF	40 LAST 706		27,6205	0 2362 1		TC	NEWMODE	CHANGE MODE TO SIGNAL END OF HUNT-TEST.
05297				27,6206	00065 1		OCT	00065	
05298	REF	221 LAST 699		27,6207	4 4516 0		CS	ONE	MAKE GROUP 3 INACTIVE WHEN DONE WITH
052985	REF	68 LAST 698		27,6210	0 2312 0		TC	NEWPHASE	THE ITERATIONS.
05299				27,6211	00003 1		OCT	3	GROUP 3.
0530	REF	48 LAST 688		27,6212	4 0067 1		CS	FIXLOC	3
05302				27,6213	4 0000 0		COM		
05304	REF	24 LAST 687		27,6214	5 0123 1		TS	PUSHLOC	
05306	REF	97 LAST 714		27,6215	0 4000 0		TC	INTPRET	...AND FALL INTO UPCONTROL...

L RE-ENTRY CONTROL

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P0531 THIS SECTION IS THE UPCONTROL FOR THE SUPERCIRCULAR PHASE

0532			27,6216	66773 1	UPCONTRL DSJ	3	IF V-V1 POS, GO TO DOWNCONTROL
0533			27,6217	43605 0	BPL	LODON	IF D-Q7 NEG, GO TO KEP
0534			27,6220	66756 0	DSJ	BMN	
0535			27,6221	41556 1	LODON	BMN	IF RDOT NEG, GO TO VLTEST
0536	REF	10 LAST 713	27,6222	01620 1		V	VLTEST TESTS FOR START OF FINAL PHASE
0537	REF	15 LAST 714	27,6223	01365 0		V1	
0538	REF	1	27,6224	16442 1		DOWNCNTL	
0539	REF	9 LAST 708	27,6225	01363 0		D	
0540	REF	6 LAST 715	27,6226	01327 0		Q7	
0541	REF	1	27,6227	16470 0		KEP	SET CONSTS, ETC FOR BALLISTIC PHASE.
0542	REF	9 LAST 713	27,6230	01347 0		RDOT	
0543	REF	1	27,6231	16524 0		VLTEST	
0544			27,6232	66775 1	CONT1 DSJ	1	
0545			27,6233	43776 0	BPL		
0546	REF	10 LAST 717	27,6234	01363 0		D	IF D-A0 NEG, L/D=LAD, GO TO 310
0547	REF	7 LAST 713	27,6235	01602 1		A0	
0548	REF	1	27,6236	16671 0		GOPOSLAD	
0549			27,6237	64774 1	DMP	2	VREF=FACT1(1-SQRT(FACT2 D + ALP))
0550			27,6240	70653 0	DAD	SGRT	
0551			27,6241	65722 0	BDSU	DMP	
0552	REF	11 LAST 717	27,6242	01363 0		D	
0553	REF	5 LAST 715	27,6243	01331 1		FACT2	
0554	REF	7 LAST 715	27,6244	01630 0		ALP	
0555	REF	15 LAST 715	27,6245	21043 0		NEARONE	
0556	REF	5 LAST 715	27,6246	01632 1		FACT1	
0557	REF	1	27,6247	33624 1	STORE	VREF	
0558			27,6250	47575 0	NOLOD	1	RDOTREF = LEWD(V1-VREF)
0559			27,6251	65722 0	BDSU	DMP	
0560	REF	16 LAST 717	27,6252	01365 0		V1	
0561	REF	7 LAST 715	27,6253	01341 0		LEWD	
0562	REF	1	27,6254	33626 0	STORE	RDOTREF	
0563			27,6255	66775 1	DSJ	1	IF VSAT - VREF NEG, GO TO CONTINU2
0564			27,6256	73635 0	BMN	NOLOD	NOLOD TO PUSH DOWN (HALVE-VREF)
0565	REF	4 LAST 711	27,6257	01612 0		VS	
0566	REF	2 LAST 717	27,6260	01624 0		VREF	NO RDHOOK UNTIL VREF LESS THAN VSAT.
0567	REF	1	27,6261	16303 0		CONTINU2	PUSHING DOWN IF NO BRANCH.
0568			27,6262	47571 1	NOLOD	5	RDHOOK=CH1(AHOOKDVL/DVL(DV+1))DV DV
0569			27,6263	64712 1	DMP	DDV	/DHOOK VREF
0570			27,6264	70722 1	DAD	DMP	WHERE DV = VS - VREF
0571			27,6265	64722 1	DMP	DMP	
0572			27,6266	62712 1	DDV	DDV	
0573			27,6267	65776 1	BDSU		
0574	REF	3 LAST 715	27,6270	01436 1		AHOOKDV	
0575	REF	7 LAST 715	27,6271	01440 0		DVL	

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0576	REF	2 LAST 711	27,6272	21162 1		1/8TH	
0577	REF	3 LAST 715	27,6273	21164 1		CH1	
0578			27,6274	00001 0		0	ABOVE SHOULD HAVE PUSHED INTO LOC 0.
0579			27,6275	77777 0		-	
0580	REF	5 LAST 715	27,6276	01434 0		DHOOK	
0581	REF	3 LAST 717	27,6277	01624 0		VREF	
0582	REF	2 LAST 717	27,6300	01626 1		RDOTREF	
0583	REF	3 LAST 718	27,6301	33626 0	STORE	RDOTREF	RDOTREF = RDOTREF - RDHOOK
05832			27,6302	66775 1	CONTINU2	DSJ	1
05834			27,6303	73776 0		BMN	
05836	REF	12 LAST 717	27,6304	01363 0		D	
05838	REF	1	27,6305	21240 1		Q7MIN	
05839	REF	1	27,6306	16320 1		CONTINU3	
0584			27,6307	66776 1	DSJ	0	
0585	REF	3 LAST 709	27,6310	01101 0		A1	FACTOR = (D-Q7)/(A1-Q7)
0586	REF	7 LAST 717	27,6311	01327 0		Q7	PARTIAL RESULT IN PD
0587			27,6312	66775 1	DSJ	1	
0588			27,6313	62776 0	DDV		
0589	REF	13 LAST 718	27,6314	01363 0		D	
0590	REF	8 LAST 718	27,6315	01327 0		Q7	
0591	REF	1	27,6316	33622 1	STORE	FACTOR	
0592			27,6317	66773 1	CONTINU3	DSJ	3
0593			27,6320	64712 1		DMP	DDV
0594			27,6321	70732 0		DAD	DSU
0595			27,6322	64712 1		DMP	DDV
0596	REF	10 LAST 717	27,6323	01347 0		RDOT	
0597	REF	4 LAST 718	27,6324	01626 1		RDOTREF	
0598	REF	2 LAST 718	27,6325	01622 0		FACTOR	
0599	REF	1	27,6326	21112 0		KB1	
0600	REF	11 LAST 717	27,6327	01620 1		V	
0601	REF	4 LAST 718	27,6330	01624 0		VREF	
0602	REF	3 LAST 718	27,6331	01622 0		FACTOR	
0603	REF	1	27,6332	21114 0		KB2	DELTA L/D INTO PD
0604			27,6333	71773 1	BOV	3	
0605			27,6334	65132 1	ABS	DSU	NONLINEAR CIRCUIT FOR REDUCING HIGH
0606			27,6335	73722 1	BMN	DMP	GAINS HERE
0607			27,6336	70656 0	DAD	SIGN	
0608	REF	1	27,6337	16372 0		GOMXL/D1	
0609			27,6340	00001 0		0	
0610	REF	1	27,6341	21242 0		PT1/16	
0611	REF	1	27,6342	16346 1		NEXT1	
0612	REF	1	27,6343	21224 0		POINT1	
0613	REF	2 LAST 718	27,6344	21242 0		PT1/16	
0614			27,6345	63775 1	NEXT1	TSLT	1
0615			27,6346	70746 0		DAD	BOV

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L RE-ENTRY CONTROL

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0616			27,6347	77777 0		-	
0617			27,6350	00005 1		4	
06175	REF	8 LAST 717	27,6351	01341 0		LEWD	
0618	REF	2 LAST 718	27,6352	16372 0		GOMXL/D1	PUSHES IF NO BRANCH, NO MATTER
0619			27,6353	47576 0	NEGTESTS	NOLOD	0
0620	REF	5 LAST 707	27,6354	33223 1		STORE	L/D
062002			27,6355	47573 0		NOLOD	3
062004			27,6356	43605 0		BPL	LODDN
062006			27,6357	66756 0		DSJ	BMN
062008			27,6360	64776 0		DMP	
06201	REF	7 LAST 707	27,6361	16740 0			LIMITL/D
062012	REF	14 LAST 718	27,6362	01363 0			D
062014	REF	2 LAST 708	27,6363	21122 0			C20
062016	REF	8 LAST 719	27,6364	16740 0			LIMITL/D
062018	REF	4 LAST 715	27,6365	21057 0			3ZEROS
06202	REF	6 LAST 719	27,6366	33223 1		STORE	L/D
062022			27,6367	76776 0		ITC	0
062024	REF	9 LAST 719	27,6370	16740 0			LIMITL/D
062026			27,6371	76575 1	GOMXL/D1	RTB	1
06203			27,6372	64772 1		DMP	ITC
062032	REF	1	27,6373	20607 1			SIGNMPAC
062034	REF	6 LAST 708	27,6374	21144 0			LAD
062036	REF	1	27,6375	16354 1			NEGTESTS

IF L/D NEG, AND D-C20 POS, L/D = 0

L/D=0 NO NEG LIFT

L RE-ENTRY CONTROL

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P0621 CONSTANT DRAG CONTROLLER

0624			27,6376	45176 0	DCONSTD	DMOVE	0	
0625	REF	6 LAST 714	27,6377	01225 0			DIFF	SAVE OLD VALUE OF DIFF FOR NEXT PASS.
0626	REF	4 LAST 714	27,6400	33325 0		STORE	DIFFOLD	
0627			27,6401	45176 0		DMOVE	0	V1OLD = V1
0628	REF	17 LAST 717	27,6402	01365 0			V1	
0629	REF	3 LAST 713	27,6403	33371 1		STORE	V1OLD	
0630			27,6404	75575 1	BECONSTD	AXT,1	1	
0631			27,6405	76535 0		RTB	SXA,1	
0632	REF	3 LAST 716	27,6406	23010 1			HUNTEST	
06325	REF	21 LAST 709	27,6407	20265 1			FRESHPD	
0633	REF	6 LAST 716	27,6410	01375 1			GOTOADDR	
0634			27,6411	64776 0	CONSTD	DMP	0	
0635	REF	2 LAST 700	27,6412	01432 0			LEQ	
0636	REF	1	27,6413	21200 0			C/DO	C/DO LEQ INTO PD
0637			27,6414	64774 1		DMP	2	
0638			27,6415	62742 1		DDV	DAD	
0639			27,6416	64742 1		DMP	DAD	
0640	REF	1	27,6417	21206 0			2HS	RDOTREF = - 2 HS DO/V
0641	REF	1	27,6420	21116 1			C19	DO = C19
0642	REF	12 LAST 718	27,6421	01620 1			V	
0643	REF	11 LAST 718	27,6422	01347 0			RDOT	
0644	REF	1	27,6423	21130 0			K2D	C/DO LEQ + K2D(RDOT-RDOTREF) INTO PD
0645			27,6424	45176 0		DMOVE	0	
0646	REF	2 LAST 720	27,6425	21116 1			C19	
0647			27,6426	66773 1	CONSTD1	DSJ	3	
0648			27,6427	64742 1		DMP	DAD	
0649			27,6430	63746 1		TSLT	BOV	
06495			27,6431	76776 0		ITC		
0650	REF	15 LAST 719	27,6432	01363 0			D	
0651			27,6433	77777 0			-	
0652	REF	1	27,6434	21126 1			K1D	
0653			27,6435	77777 0			-	
0654			27,6436	00011 1			8D	
0655	REF	3 LAST 719	27,6437	16372 0			GOMXL/D1	
0656	REF	2 LAST 719	27,6440	16354 1			NEGTESTS	
0659			27,6441	66774 0	DOWNCNTL	DSJ	2	RDTR = LAD(V1-V)
0660			27,6442	64742 1		DMP	DAD	
0661			27,6443	64742 1		DMP	DAD	
0662	REF	13 LAST 720	27,6444	01620 1			V	
0663	REF	18 LAST 720	27,6445	01365 0			V1	
0664	REF	7 LAST 719	27,6446	21144 0			LAD	
0665	REF	12 LAST 720	27,6447	01347 0			RDOT	
0666	REF	2 LAST 720	27,6450	21130 0			K2D	

RESETS GOTOADDR TO GO TO HUNTEST

RDOTREF = - 2 HS DO/V
DO = C19

C/DO LEQ + K2D(RDOT-RDOTREF) INTO PD

RDTR = LAD(V1-V)

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0667	REF	1		27,6451	21146 1		LAD/256	LAD + K2D(RDOT-RDTR) INTO PD
0668				27,6452	66775 1	DSJ	1	
0669				27,6453	51112 1	DSQ	DDV	
0670	REF	19 LAST 720		27,6454	01365 0		V1	
0671	REF	14 LAST 720		27,6455	01620 1		V	
0672	REF	1		27,6456	21222 0		2C1HSLAD	(V1-V)SQ/(2 C1 HS/LAD) INTO PD
0673				27,6457	51174 1	DSQ	2	DREF = (V/V1)SQ A0 - PD
0674				27,6460	62706 1	DDV	BDDV	
0675				27,6461	66776 1	DSJ		
0676	REF	20 LAST 721		27,6462	01365 0		V1	
0677	REF	4 LAST 709		27,6463	01343 1		VSQUARE	
0678	REF	8 LAST 717		27,6464	01602 1		A0	
0679				27,6465	76776 0	ITC	0	
06791	REF	1		27,6466	16427 1		CONSTD1	
0680				27,6467	77576 0	KEP	EXIT	0
0681	REF	1		27,6470	3 6521 1	CAF	KEPCADR	SET GOTOADDR TO KEPLER PHASE.
06815	REF	7 LAST 720		27,6471	5 1374 0	TS	GOTOADDR	
0682	REF	41 LAST 716		27,6472	0 2362 1	TC	NEWMODE	SET MODE TO KEPLER PHASE.
06825				27,6473	00066 1	OCT	00066	
0683	REF	98 LAST 716		27,6474	0 4000 0	TC	INTPRET	
0684				27,6475	66775 1	KEP2	DSJ	1
06841				27,6476	73775 0		BMN	EXIT
06842	REF	16 LAST 720		27,6477	01363 0		D	
06843	REF	2 LAST 706		27,6500	21142 0		.05G	
06844	REF	1		27,6501	16516 1		NO.05G	
06845	REF	14 LAST 706		27,6502	0 3373 0	TC	RELAYON	
06846				27,6503	40100 1	OCT	40100	SEND .05G INDICATION
06847	REF	99 LAST 721		27,6504	0 4000 0	TC	INTPRET	
06848				27,6505	70775 0	KEP3	DAD	1
0685				27,6506	66756 0		DSJ	BMN
0686	REF	9 LAST 718		27,6507	01327 0		Q7	IF Q7+KDMIN - D NEG, GO TO FINAL PHASE
0687	REF	1		27,6510	21070 0		KDMIN	MIN DRAG = Q7 + .5 FT/SEC/SEC
0688	REF	17 LAST 721		27,6511	01363 0		D	
0689	REF	2 LAST 710		27,6512	16532 1		PREFINAL	FALL THRU IF POS...
0690				27,6513	77576 0	ENDEXIT	EXIT	0
0691	REF	1		27,6514	0 7032 1		TC	OVERNOUT
06912				27,6515	77576 0	NO.05G	EXIT	0
06914	REF	15 LAST 618		27,6516	0 3405 0		TC	RELAYOFF
06916				27,6517	40100 1		OCT	40100

REMOVE .05G INDICATION

L RE-ENTRY CONTROL

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06918	REF	1		27,6520	0 6504 0	TC	KEP3 -1	
06919	REF	2 LAST 706		27,6521	56475 1	KEPCADR	CADR	KEP2
069195	REF	1		27,6522	56544 1	P3CADR	CADR	PREDICT3
0692				27,6523	66775 1	VLTEST	DSJ	1
0693				27,6524	66616 0		DSJ	BPL
0694	REF	15 LAST 721		27,6525	01620 1			V
0695	REF	13 LAST 715		27,6526	01616 1			VL
0696	REF	2 LAST 709		27,6527	21066 1			C18
0697	REF	1		27,6530	16233 1			CONT1
0698				27,6531	42575 0	PREFINAL	SWITCH 1	
0699				27,6532	77576 0		EXIT	
06995	REF	2 LAST 704		27,6533	00011 1			EGSW
06997	REF	222 LAST 716		27,6534	4 4516 0		CS	ONE
06998	REF	69 LAST 716		27,6535	0 2312 0		TC	NEWPHASE
06999				27,6536	00003 1		OCT	3
0700	REF	1		27,6537	3 6522 1		CAF	P3CADR
07005	REF	8 LAST 721		27,6540	5 1374 0		TS	GOTOADDR
0701	REF	42 LAST 721		27,6541	0 2362 1		TC	NEWMODE
07015				27,6542	00067 0		OCT	00067
0702	REF	100 LAST 721		27,6543	0 4000 0		TC	INTPRET

IF V-VL-C18 NEG,EGSW=1,SELECTOR=PREDIC
GO TO PREDICT3

CHANGE GOTOADDR TO PREDICT3 AND FALL
INTO PREDICT3

SET TO PREDICT3 PHASE.

... AND FALL INTO PREDICT3...

L RE-ENTRY CONTROL

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P0703 SUBORBITAL CONTROL (REFERENCE TRAJECTORY BY TABLE LOOK-UP.)

0704			27,6544	66772 0	PREDICT3	DSU	4	
0705			27,6545	73605 0		BMN	LODON	IF V - VQUIT NEG, STOP STEERING
0706			27,6546	43576 1		TEST		
0707			27,6547	41612 1		VXV	DOT	IF (RT)*UNITR.UNI NEG, SET GONEPAST
0708			27,6550	73775 0		BMN	EXIT	
0709	REF	16 LAST 722	27,6551	01620 1			V	
0710	REF	1	27,6552	21120 1			VQUIT	
0711	REF	1	27,6553	17006 1			STEER	
0712	REF	1	27,6554	00007 0			GONEPAST	
0713	REF	1	27,6555	16700 1			GONEGLAD	
0714	REF	3 LAST 702	27,6556	01215 0			RT	
0715	REF	20 LAST 702	27,6557	01016 1			UNITR	
0716	REF	3 LAST 702	27,6560	01562 1			UNI	(MIGHT SAVE THIS FROM EARLIER..
0717	REF	1	27,6561	16676 1			SETGPAST	
0718	REF	1	27,6562	4 5642 0		CS	NEG14	
0719	REF	1	27,6563	5 1107 0	BACK	TS	JJ	
0720	REF	17 LAST 723	27,6564	4 1617 1		CS	V	
0721	REF	2 LAST 723	27,6565	2 1107 1		INDEX	JJ	
0722	REF	1	27,6566	6 7203 1		AD	VREFER	VREF - V, HIGHEST VREF AT END OF TABLE.
0723	REF	495 LAST 691	27,6567	1 0000 0		CCS	A	IF VREF-V POS LOOP BACK
0724	REF	3 LAST 723	27,6570	1 1107 1		CCS	JJ	DECREMENT JJ, JJ CANNOT BE ZERO
0725	REF	1	27,6571	0 6563 1		TC	BACK	
0726	REF	223 LAST 722	27,6572	6 4516 1		AD	ONE	
0727	REF	5 LAST 708	27,6573	5 1420 0		TS	TEM1B	V-VREF IN TEM1B (MUST BE POSITIVE NUM)
0728	REF	4 LAST 723	27,6574	2 1107 1		INDEX	JJ	
0729	REF	2 LAST 723	27,6575	4 7203 0		CS	VREFER	
0730	REF	5 LAST 723	27,6576	2 1107 1		INDEX	JJ	
0731	REF	3 LAST 723	27,6577	6 7204 0		AD	VREFER + 1	V(K+1) - V(K) (POS NUM)
0732	REF	6 LAST 723	27,6600	3 1420 0		XCH	TEM1B	
0733			27,6601	2 5777 1		EXTEND		
0734	REF	7 LAST 723	27,6602	5 1420 0		DV	TEM1B	
0735	REF	1	27,6603	5 1422 1		TS	GRAD	GRAD = (V-VREF)/(VK+1 - VK) (POS NUM)
0736	REF	14 LAST 576	27,6604	3 4477 1		CAF	FIVE	
0737	REF	1	27,6605	5 1421 1	BACK2	TS	M1	
0738	REF	1	27,6606	3 7201 0		CAF	DEC15	
0739	REF	6 LAST 723	27,6607	6 1107 0		AD	JJ	
0740	REF	7 LAST 723	27,6610	5 1107 0		TS	JJ	
0741	REF	496 LAST 723	27,6611	2 0000 0		INDEX	A	
0742	REF	4 LAST 723	27,6612	4 7203 0		CS	VREFER	
0743	REF	8 LAST 723	27,6613	2 1107 1		INDEX	JJ	
0744	REF	5 LAST 723	27,6614	6 7204 0		AD	VREFER + 1	X(K+1) - X(K)
0745			27,6615	2 5777 1		EXTEND		
0746	REF	2 LAST 723	27,6616	4 1422 0		MP	GRAD	

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0747	REF	9 LAST 723	27,6617	2 1107 1	INDEX	JJ	
0748	REF	6 LAST 723	27,6620	6 7203 1	AD	VREFER	
0749	REF	2 LAST 723	27,6621	2 1421 0	INDEX	M1	
0750	REF	1	27,6622	5 1100 1	TS	FX	FX = AK + GRAD (AK+1 - AK)
0751	REF	3 LAST 724	27,6623	1 1421 0	CCS	M1	
0752	REF	1	27,6624	0 6605 1	TC	BACK2	
0753	REF	2 LAST 724	27,6625	4 1101 1	CS	FX +1	2 DON'T DESTROY FX +1
0754			27,6626	4 0000 0	COM		
0755	REF	18 LAST 721	27,6627	6 1362 1	AD	D	
0756			27,6630	2 5777 1	EXTEND		
0757	REF	3 LAST 724	27,6631	4 1105 0	MP	FX + 5	F1
0758	REF	8 LAST 723	27,6632	5 1420 0	TS	TEM1B	TEM1B= F1(D-DREF)
0759	REF	13 LAST 720	27,6633	4 1346 0	CS	RDOT	FORM RDOTREF - RDOT
0760			27,6634	6 0000 1	DOUBLE		
0761			27,6635	6 0000 1	DOUBLE		SCALE UP BY 8 FOR THIS PHASE.
0762			27,6636	6 0000 1	DOUBLE		
0763	REF	4 LAST 724	27,6637	6 1103 1	AD	FX + 3	RDOTREF
0764			27,6640	2 5777 1	EXTEND		
0765	REF	5 LAST 724	27,6641	4 1104 1	MP	FX + 4	F2
0766	REF	9 LAST 724	27,6642	6 1420 0	AD	TEM1B	ADD F2(DADV1-DADVR)
0767	REF	6 LAST 724	27,6643	6 1102 0	AD	FX + 2	RTOGO
0768	REF	1	27,6644	3 1106 1	XCH	PREDANG	NO OVERFLOW SKIP PLEASE.
0769	REF	101 LAST 722	27,6645	0 4000 0	TC	INTPRET	
0770			27,6646	43175 0	SMOVE	1	
0771			27,6647	56726 1	TSRT	BDSU	THETAH - PRED ANGLE
0772	REF	2 LAST 724	27,6650	01107 0		PREDANG	
0773			27,6651	00004 0		3	
0774	REF	7 LAST 713	27,6652	01111 1		THETAH	
0775			27,6653	43173 0	SMOVE	3	
0776			27,6654	61716 0	BDDV	TSLT	
0777			27,6655	71742 0	BDV	DAD	
0778			27,6656	71776 1	BDV		
07782	REF	7 LAST 724	27,6657	01101 0		FX	FX = DRANGE/D L/D = Y
07784			27,6660	77777 0		-	
0779			27,6661	00006 1		5	
0780	REF	1	27,6662	16705 1		GOMAXL/D	
0781	REF	1	27,6663	21170 1		LOD	
0782	REF	2 LAST 724	27,6664	16705 1		GOMAXL/D	
0783	REF	7 LAST 719	27,6665	33223 1	STORE	L/D	
0784			27,6666	76776 0	ITC	0	
0785	REF	1	27,6667	16712 1		GLIMITER	
0786			27,6670	45176 0	GOPOSLAD DMOVE	0	
0787	REF	8 LAST 720	27,6671	21144 0		LAD	
0788	REF	8 LAST 724	27,6672	33223 1	STORE	L/D	

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0789			27,6673	76776 0	ITC	0	
0790	REF	10 LAST 719	27,6674	16740 0		LIMITL/D	
0791			27,6675	42576 0	SETGPAST SWITCH	0	SHOULD BE BY TARGET IF HERE.
0792	REF	2 LAST 723	27,6676	00007 0		GONEPAST	
0793			27,6677	47176 1	GONEGLAD COMP	0	
0794	REF	9 LAST 724	27,6700	21144 0		LAD	L/D = - LAD
0795	REF	9 LAST 724	27,6701	33223 1	STORE	L/D	
0796			27,6702	76776 0	ITC	0	
0797	REF	2 LAST 724	27,6703	16712 1		GLIMITER	
0798			27,6704	76575 1	GOMAXL/D RTB	1	
0799			27,6705	64776 0	DMP		L/D = LAD SIG(MPAC)
0800	REF	2 LAST 719	27,6706	20607 1		SIGNMPAC	
0801	REF	10 LAST 725	27,6707	21144 0		LAD	
0802	REF	10 LAST 725	27,6710	33223 1	STORE	L/D	AND FALLS INTO LIMITL/D SECTION.
0803			27,6711	66774 0	GLIMITER DSU	2	IF GMAX/2-D POS, GO TO LIMITL/D
0804			27,6712	43742 1	BPL	DAD	IF GMAX-D NEG, GO TO GOPOSLAD
0805			27,6713	73722 1	BMN	DMP	
0806	REF	1	27,6714	21202 1		GMAX/2	
0807	REF	19 LAST 724	27,6715	01363 0		D	
0808	REF	11 LAST 725	27,6716	16740 0		LIMITL/D	
0809	REF	2 LAST 725	27,6717	21202 1		GMAX/2	
0810	REF	2 LAST 717	27,6720	16671 0		GOPOSLAD	
0811	REF	2 LAST 720	27,6721	21206 0		2HS	2HS(GMAX-D) INTO PD
0812			27,6722	64775 0	DMP	1	
0813			27,6723	70722 1	DAD	DMP	
0814	REF	3 LAST 720	27,6724	01432 0		LEQ	
0815	REF	1	27,6725	21204 1		1/GMAX	
0816	REF	11 LAST 725	27,6726	21144 0		LAD	2HS(GMAX-D) (LEQ/GMAX+LAD) INTO PD
0817			27,6727	62774 1	DDV	2	
0818			27,6730	70653 0	DAD	SQRT	XLIM = SQRT(PD+(2HSGMAX/V)SQ)
0819			27,6731	70756 1	DAD	BMN	IF RDOT+XLIM NEG, L/D=LAD
0821	REF	1	27,6732	21210 1		2HSGMXSQ	
0822	REF	5 LAST 721	27,6733	01343 1		VSQUARE	
0823			27,6734	77777 0		-	
0824	REF	14 LAST 724	27,6735	01347 0		RDOT	KGLIM2= -5 SCALED
0825	REF	3 LAST 725	27,6736	16671 0		GOPOSLAD	

L RE-ENTRY CONTROL

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P0836 COMES HERE TO COMPUTE ROLL COMMAND, CHECK LATERAL ERRORS, AND STEER

0838			27,6737	43575 1	LIMITL/D TEST	1	NO LATERAL CONTROL IF PAST TARGET	
0839			27,6740	64742 1	DMP	DAD	Y = KLAT VSQUARE + LATBIAS	
0840	REF	3 LAST 725	27,6741	00007 0		GONEPAST		
0841	REF	1	27,6742	16776 0		L355		
0842	REF	6 LAST 725	27,6743	01343 1		VSQUARE		
0843	REF	1	27,6744	21150 0		KLAT		
0844	REF	1	27,6745	21152 1		LATBIAS		
0845	REF	1	27,6746	32025 1	STORE	Y		
0846			27,6747	65172 0	L350	ABS	4	IF ABS(L/D)-L/DCMINR NEG, GO TO L353
0847			27,6750	66756 0		DSJ	BMN	
0848			27,6751	41456 0		LODDN	SIGN	IF K2ROLL LATANG NEG, GO TO L357
0849			27,6752	73605 0		BMN	LODON	
0850			27,6753	56776 1		TSRT		Y = Y/2
0851	REF	11 LAST 725	27,6754	01223 0		L/D		
0852	REF	1	27,6755	21176 1		L/DCMINR		
0853	REF	1	27,6756	16766 1		L353		
0854	REF	2 LAST 702	27,6757	01113 0		LATANG		
0855	REF	1	27,6760	01373 1		K2ROLL		
0856	REF	1	27,6761	17070 0		L357		
0857	REF	2 LAST 726	27,6762	00025 0		Y		
0858			27,6763	00002 0		1		
0859	REF	3 LAST 726	27,6764	32025 1	STORE	Y		
0860			27,6765	53774 0	L353	SIGN	2	IF LATANG SIGN(K2ROLL) = Y POS, SWITCH
0861			27,6766	66756 0		DSJ	BMN	IF POS, GO TO BL361 IN BASIC.
0862			27,6767	76576 1		RTB		
0863	REF	3 LAST 726	27,6770	01113 0		LATANG		
0864	REF	2 LAST 726	27,6771	01373 1		K2ROLL		
0865	REF	4 LAST 726	27,6772	00025 0		Y		
0866	REF	2 LAST 726	27,6773	16776 0		L355		
0869	REF	1	27,6774	17045 0		BL361		
0870			27,6775	62774 1	L355	DDV	2	ROLLC = ACOS((L/D)/LAD)
0871			27,6776	56703 0		TSRT	ACOS	
0872			27,6777	53776 1		SIGN		ROLLC = ROLLC SIGN(K2ROLL)
0873	REF	12 LAST 726	27,7000	01223 0		L/D		
0874	REF	12 LAST 725	27,7001	21144 0		LAD		
0875			27,7002	00002 0		1		
0876	REF	3 LAST 726	27,7003	01373 1		K2ROLL		
0877	REF	3 LAST 620	27,7004	33473 1	STORE	ROLLC		

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0878			27,7005	77576 0	STEER	EXIT	0	
0882	REF	23 LAST 614	27,7006	3 4503 0	STEER2	CAF	BIT12	1/8 TH.
0883			27,7007	2 5777 1		EXTEND		
0884	REF	4 LAST 726	27,7010	4 1472 0		MP	ROLLC	SCALE ROLL OUTPUT FOR 16 SPEED.
08841	REF	516 LAST 691	27,7011	5 0115 1		TS	MPAC	
08842	REF	29 LAST 618	27,7012	3 4504 1		CAF	BIT11	1/16 TH.
08843			27,7013	2 5777 1		EXTEND		
08844	REF	1	27,7014	4 1352 0		MP	ROLLBIAS	BIAS AOG FROM LIFT UP ORIENTATION
08845	REF	517 LAST 727	27,7015	6 0115 1		AD	MPAC	ROLL = ROLLC/8 + ROLLBIAS/16 + K1ROLL
0885	REF	8 LAST 618	27,7016	6 1450 1		AD	K1ROLL	
0886	REF	518 LAST 727	27,7017	5 0115 1		TS	MPAC	AFRAID TO STORE POSS BAD NUM IN THETAD
0887			27,7020	0 7024 0		TC	+4	SKIPS ON OVERFLOW
0888	REF	497 LAST 723	27,7021	2 0000 0		INDEX	A	
0889	REF	8 LAST 390	27,7022	3 4477 1		CAF	LIMITS	ALLOW OVERFLOW (GO TO NEGMAX FROM POSMX)
0890	REF	519 LAST 727	27,7023	6 0115 1		AD	MPAC	
08908			27,7024	2 0017 0		INHINT		
0891	REF	32 LAST 628	27,7025	5 0700 0		TS	THETAD	THETAD = X CDU = ROLL
08912	REF	16 LAST 580	27,7026	4 4514 1		CS	BIT3	
08913	REF	5 LAST 154	27,7027	7 0675 1		MASK	TMMARKER	
08914	REF	17 LAST 727	27,7030	6 4514 0		AD	BIT3	SET BIT 3 IN TMMARKER WHEN THETAD COMP
08915	REF	6 LAST 727	27,7031	5 0675 0		TS	TMMARKER	
0892	REF	31 LAST 714	27,7032	0 2276 0	OVERNOUT	TC	PHASCHNG	RECYCLE GROUP 5 TO PIPUP WAIT STATE.
08922			27,7033	01405 1		OCT	01405	5.12 RESTART. (PIPUP SYNCED WITH 2 SEC)
08923	REF	24 LAST 592	27,7034	0 3302 0		TC	GRABDSP	
08924	REF	1	27,7035	0 7042 0		TC	ENDENTRY	
08925	REF	1	27,7036	3 7043 1		CAF	V06N62	DISPLAY TIME, VELOCITY, AND THETAH
08926	REF	42 LAST 592	27,7037	0 3100 0		TC	NVSUB	
08927	REF	4 LAST 592	27,7040	0 3250 0		TC	RELDSPON	
08928	REF	28 LAST 592	27,7041	0 3362 0		TC	FREEDSP	
08929	REF	106 LAST 697	27,7042	0 2124 1	ENDENTRY	TC	ENDOFJOB	
089295			27,7043	00662 0	V06N62	OCT	00662	

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0893	REF	4	LAST	726	27,7044	4	1372	1	BL361	CS	K2ROLL	K2ROLL = - K2ROLL
0894	REF	5	LAST	728	27,7045	5	1372	0		TS	K2ROLL	
0895	REF	13	LAST	726	27,7046	1	1222	0		CCS	L/D	IF L/D POS, EXIT
0896	REF	21	LAST	680	27,7047	0	4703	1		TC	RE-ENTER	SO IT WONT STORE IN PUSH LIST.
0897	REF	22	LAST	728	27,7050	0	4703	1		TC	RE-ENTER	
0898					27,7051	0	7053	0		TC	+2	
0899	REF	23	LAST	728	27,7052	0	4703	1		TC	RE-ENTER	
0900	REF	6	LAST	728	27,7053	1	1372	1		CCS	K2ROLL	K1ROLL = K1ROLL + K3ROLL SIGN(K2ROLL)
0901	REF	1			27,7054	3	7202	0		CAF	K3ROLL	K3ROLL = - .125
0902					27,7055	0	7057	1		TC	+2	
0903	REF	2	LAST	728	27,7056	4	7202	1		CS	K3ROLL	
0904	REF	9	LAST	727	27,7057	6	1450	1		AD	K1ROLL	
0905	REF	10	LAST	728	27,7060	5	1450	1		TS	K1ROLL	
0906	REF	24	LAST	728	27,7061	0	4703	1		TC	RE-ENTER	SKIPS THIS ON OVERFLOW.
0907	REF	498	LAST	727	27,7062	2	0000	0		INDEX	A	POSMAX + 1 = NEGMAX ETC.
0908	REF	9	LAST	727	27,7063	3	4477	1		CAF	LIMITS	NO LIMIT ON NUMBER OF ROLL REVS DURING
0909	REF	11	LAST	728	27,7064	6	1450	1		AD	K1ROLL	ENTRY. (ROUTINE IS GENERAL.)
0910	REF	12	LAST	728	27,7065	5	1450	1		TS	K1ROLL	STILL DOESNT WORRY ABOUT 2SCOMP, THO.
0911	REF	25	LAST	728	27,7066	0	4703	1		TC	RE-ENTER	
0912					27,7067	53776	1		L357	SIGN	0	
0913	REF	2	LAST	726	27,7070	21176	1				L/DCMINR	L/D = L/DCMINR SIGN(L/D)
0914	REF	14	LAST	728	27,7071	01223	0				L/D	
0915	REF	15	LAST	728	27,7072	33223	1			STORE	L/D	
0916					27,7073	76776	0			ITC	0	
0917	REF	3	LAST	726	27,7074	16776	0				L355	

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P0922 ROUTINE TO PREDICT AND SET PITCH ANGLE FOR 2ND ENTRY CONDITIONS.

0923	REF	3	LAST	358	27,7075	3	2150	1	UPTHETA3	CAF	PRI014	
0924	REF	33	LAST	698	27,7076	0	2046	1		TC	FINDVAC	
0925	REF	2	LAST	130	27,7077		57101	0		CADR	UPTHETA1	
0926	REF	94	LAST	698	27,7100	0	2256	1		TC	TASKOVER	
0927	REF	102	LAST	724	27,7101	0	4000	0	UPTHETA1	TC	INTPRET	STARTS OFF IN BASIC
0928					27,7102		76776	0	UPTHETA	ITC	0	FIND DESIRED SPACECRAFT ORIENTATION.
0929	REF	2	LAST	620	27,7103		21244	0			GETUNB	
0930					27,7104		76776	0		ITC	0	GET OGC, IGC, MGC., GIMBAL COMMANDS
0931	REF	6	LAST	630	27,7105		04353	0			CALCGTA	
0932					27,7106		66775	1		DSJ	1	GET UNCORRECTED ROLLBIAS
09325					27,7107		77576	0		EXIT		
0933	REF	31	LAST	630	27,7110		01521	0			OGC	
09335	REF	1			27,7111		00017	1			ROLLCTEM	
0934	REF	520	LAST	727	27,7112	3	0115	1		XCH	MPAC	
09345					27,7113	6	0000	1		DOUBLE		
0935	REF	521	LAST	729	27,7114	5	0117	0		TS	MPAC +2	
09355					27,7115	0	7121	1		TC	+4	OVERFLOW CORRECT
0936	REF	499	LAST	728	27,7116	2	0000	0		INDEX	A	
09365	REF	10	LAST	728	27,7117	3	4477	1		CAF	LIMITS	
0937	REF	522	LAST	729	27,7120	6	0117	0		AD	MPAC +2	
09375	REF	2	LAST	727	27,7121	3	1352	1		XCH	ROLLBIAS	STORE NEW VALUE AND FETCH OLD.
0938					27,7122	4	0000	0		COM		
09385	REF	523	LAST	729	27,7123	5	0117	0		TS	MPAC +2	
0939	REF	3	LAST	729	27,7124	6	1352	1		AD	ROLLBIAS	
09392	REF	500	LAST	729	27,7125	5	0000	1		TS	A	LIMIT CHANGE IN ROLLBIAS TO 180 DEG.
09394					27,7126	0	7131	0		TC	+3	
09396	REF	524	LAST	729	27,7127	4	0117	1		CS	MPAC +2	
09398	REF	4	LAST	729	27,7130	5	1352	1		TS	ROLLBIAS	USE OLD VALUE IF TOO BIG.
0940	REF	11	LAST	469	27,7131	4	1522	1		CS	IGC	
09402					27,7132	4	0000	0		COM		
09404					27,7133	6	0000	1		DOUBLE		
09406	REF	33	LAST	727	27,7134	3	0701	1		XCH	THETAD +1	COMMAND PITCH ANGLE. (NO SKIPS)
09407	REF	13	LAST	468	27,7135	4	1524	1		CS	MGC	
09408					27,7136	4	0000	0		COM		
09409					27,7137	6	0000	1		DOUBLE		CHANGE FROM INTERPRETER SCALING TO CDU
094095	REF	34	LAST	729	27,7140	3	0702	1		XCH	THETAD +2	YAW, MG ANGLE COMMAND
0941					27,7141	2	0017	0		INHINT		

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L RE-ENTRY CONTROL

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0942	REF	1	27,7142	3 7146 0	CAF	PITCHDT	CALL UP ATTITUDE CONTROL LOOP PITCHDT
0943	REF	118 LAST 698	27,7143	0 2173 0	TC	WAITLIST	SECONDS AFTER FINISHING THIS TIME.
0944	REF	1	27,7144	57075 1	CADR	UPTHETA3	
0945	REF	107 LAST 727	27,7145	0 2124 1	UPNOVER TC	ENDOFJOB	

094501			27,7146	00003 1	PITCHDT DEC	3	
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L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 34

P09451 PIPAS ARE READ (BUT NOT CLEARED) AT A HIGHER RATE HERE.

094512	REF	15	LAST	571	27,7147	4	0044	0	INTERPIP	CS	PIPAX	
094514	REF	2	LAST	698	27,7150	2	1414	0		INDEX	PIPCTR	
094516	REF	2	LAST	699	27,7151	5	1400	1		TS	XPIPBUF	
094518	REF	12	LAST	571	27,7152	4	0045	1		CS	PIPAY	
09452	REF	3	LAST	731	27,7153	2	1414	0		INDEX	PIPCTR	
094522	REF	2	LAST	699	27,7154	5	1404	0		TS	YPIPBUF	
094524	REF	8	LAST	571	27,7155	4	0046	1		CS	PIPAZ	
094526	REF	4	LAST	731	27,7156	2	1414	0		INDEX	PIPCTR	
094528	REF	2	LAST	699	27,7157	5	1410	0		TS	ZPIPBUF	
09453	REF	5	LAST	731	27,7160	1	1414	0		CCS	PIPCTR	
094532					27,7161	0	7165	1		TC	+4	
094534	REF	94	LAST	699	27,7162	3	5503	1		CAF	TWO	
094536	REF	6	LAST	731	27,7163	5	1414	1		TS	PIPCTR	
094538	REF	95	LAST	729	27,7164	0	2256	1		TC	TASKOVER	WOULD GO TO PIPSETUP IF SMOOTHER WRITTEN
09454	REF	7	LAST	731	27,7165	5	1414	1		TS	PIPCTR	
094545	REF	1			27,7166	3	7177	1		CAF	IPIPDT1	
094548	REF	119	LAST	730	27,7167	0	2173	0		TC	WAITLIST	
09455	REF	2	LAST	698	27,7170		57147	1		CADR	INTERPIP	
094555	REF	96	LAST	731	27,7171	0	2256	1		TC	TASKOVER	
09456	REF	2	LAST	584	27,7172	3	2151	0	PIPSETUP	CAF	PRI015	LOWER THAN AVG G - HIGHER THAN UPTHETA.
094562	REF	30	LAST	622	27,7173	0	2052	1		TC	NOVAC	
094564	REF	1			27,7174		57176	0		CADR	SMOOTHER	
094566	REF	97	LAST	731	27,7175	0	2256	1		TC	TASKOVER	
09457	REF	108	LAST	730	27,7176	0	2124	1	SMOOTHER	TC	ENDOFJOB	WHEN WRITTEN, FIND A GOOD BANK FOR THIS.
09458					27,7177	00062	0		IPIPDT1	DEC	50	

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 35

P0946 DETERMINE TIME TO OPEN CHUTE HERE IF NEEDED

09465		27,7200		BANK	27	
0957		27,7200	00310 0	DT	DEC	200
0958		27,7201	00017 1	DEC15	DEC	15
0959		27,7202	73777 1	K3ROLL	DEC	-0.125
R0961	DEFINED BY EQUALS					
0963			0000	ASP	EQUALS	0
0964			0024	Y	EQUALS	20D
0965			0026	GAMMAL1	EQUALS	22D
09655	REF 8 LAST 724		1100	A1	EQUALS	FX

MAIN LOOP DT.

TEMP

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 36

P0966 TABLE USED FOR SUB-ORBITAL REFERENCE TRAJECTORY CONTROL.

0967	27,7203	00000 1	VREFER	DEC	0	REFERENCE VELOCITY SCALED $V/51552.3946$ 15 POINTS ARE STORED AS THE INDEPENDENT VARIABLE AND THEN SIX 15 POINT FUNC- TIONS OF V ARE STORED CONSECUTIVELY	
0968	27,7204	00153 0		DEC	.006539		
0969	27,7205	00527 1		DEC	.020958		
0970	27,7206	01235 1		DEC	.040809		
0971	27,7207	02337 1		DEC	.076107		
0972	27,7210	03721 0		DEC	.122156		
0973	27,7211	05230 0		DEC	.165546		
0974	27,7212	06213 1		DEC	.196012		
0975	27,7213	10550 0		DEC	.271945		
0976	27,7214	11717 0		DEC	.309533		
0977	27,7215	13314 0		DEC	.356222		
0978	27,7216	14736 0		DEC	.404192		
0979	27,7217	16255 1		DEC	.448067	HIGH VELOCITY FOR SAFETY	
0980	27,7220	16457 0		DEC	.456023		
0981	27,7221	25570 1		DEC	.67918		
0982	27,7222	77573 0		DEC	-.008035	DRANGE/DA SCALED $DRDA/(2700/805)$	
0983	27,7223	77573 0		DEC	-.008035		
0984	27,7224	77516 0		DEC	-.010820		
0985	27,7225	77360 1		DEC	-.016550		
0986	27,7226	77106 0		DEC	-.026935		
0987	27,7227	76516 1		DEC	-.042039		
0988	27,7230	76071 0		DEC	-.058974		
0989	27,7231	75570 1		DEC	-.070721		
0990	27,7232	74661 0		DEC	-.098538		
0991	27,7233	74436 0		DEC	-.107482		
0992	27,7234	73212 1		DEC	-.147762		
0993	27,7235	71640 0		DEC	-.193289		
0994	27,7236	54557 1		DEC	-.602557		
0995	27,7237	40000 0		DEC	-.99999		
0996	27,7240	40000 0		DEC	-.99999		
0997	27,7241	00000 1		DEC	0		-DRANGE/DRDOT SCALED $((2VS/8 \ 2700) \ DR/DRDOT)$
0998	27,7242	00000 1		DEC	0		
0999	27,7243	77632 0		DEC	-.0494520	B-3	
1000	27,7244	77563 1		DEC	-.0683663	B-3	
1001	27,7245	77354 0		DEC	-.1343468	B-3	
1002	27,7246	76712 1		DEC	-.2759846	B-3	
1003	27,7247	76066 0		DEC	-.4731437	B-3	
1004	27,7250	75322 0		DEC	-.6472087	B-3	
1005	27,7251	73237 0		DEC	-1.171693	B-3	
1006	27,7252	72104 1		DEC	-1.466382	B-3	
1007	27,7253	70301 1		DEC	-1.905171	B-3	
1008	27,7254	65635 1		DEC	-2.547990	B-3	
1009	27,7255	57311 0		DEC	-4.151220	B-3	
1010	27,7256	50575 0		DEC	-5.813617	B-3	

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 37

1011	27,7257	50575 0	DEC	-5.813617	B-3	
1012	27,7260	76265 1	DEC	-.00642065	B3	RDOTREF SCALED (8 RDT/2VS)
1013	27,7261	76265 1	DEC	-.00642065	B3	
1014	27,7262	74435 0	DEC	-.0134426	B3	
1015	27,7263	74333 1	DEC	-.013947	B3	
1016	27,7264	74433 0	DEC	-.013462	B3	
1017	27,7265	74763 0	DEC	-.011813	B3	
1018	27,7266	75432 0	DEC	-.0095631	B3	
1019	27,7267	75735 1	DEC	-.00806946	B3	
1020	27,7270	76200 1	DEC	-.006828	B3	
1021	27,7271	75735 1	DEC	-.00806946	B3	
1022	27,7272	75140 0	DEC	-.0109791	B3	
1023	27,7273	74075 0	DEC	-.0151496	B3	
1024	27,7274	73312 0	DEC	-.0179817	B3	
1025	27,7275	73732 0	DEC	-.0159061	B3	
1026	27,7276	73732 0	DEC	-.0159061	B3	
1027	27,7277	00000 1	DEC	0		RANGE TO GO SCALED RTOGO/2700
1028	27,7300	00000 1	DEC	0		
1029	27,7301	00020 0	DEC	.00100		2.7 NM
1030	27,7302	00066 1	DEC	.0032963		8.9
1031	27,7303	00206 0	DEC	.0081852		22.1
1032	27,7304	00431 1	DEC	.017148		
1033	27,7305	00712 0	DEC	.027926		
1034	27,7306	01136 1	DEC	.037		
1035	27,7307	02015 1	DEC	.063296		
1036	27,7310	02374 0	DEC	.077889		
1037	27,7311	03123 1	DEC	.098815		
1038	27,7312	04051 1	DEC	.127519		
1039	27,7313	05767 1	DEC	.186963		
1040	27,7314	07476 0	DEC	.238148		
1041	27,7315	07476 0	DEC	.238148		
1042	27,7316	76511 0	DEC	-.042360		-AREF SCALED AREF/805
1043	27,7317	76511 0	DEC	-.042360		
1044	27,7320	76234 0	DEC	-.052919		
1045	27,7321	75472 1	DEC	-.074534		
1046	27,7322	74604 0	DEC	-.101242		
1047	27,7323	74210 1	DEC	-.116646		
1048	27,7324	74052 0	DEC	-.122360		
1049	27,7325	73735 1	DEC	-.127081		
1050	27,7326	73217 1	DEC	-.147453		
1051	27,7327	73013 1	DEC	-.155528		
1052	27,7330	73155 1	DEC	-.149565		
1053	27,7331	74151 1	DEC	-.118509		
1054	27,7332	76703 1	DEC	-.034907		
1055	27,7333	77575 0	DEC	-.007950		
1056	27,7334	77575 0	DEC	-.007950		

L RE-ENTRY CONTROL

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1057	27,7335	00006 1	DEC	.000371	DRANGE/D L/D SCALED Y/2700
1058	27,7336	00006 1	DEC	.000371	
1059	27,7337	00116 1	DEC	.004770	
1060	27,7340	00204 1	DEC	.008081	
1061	27,7341	00407 1	DEC	.016030	
1062	27,7342	01113 0	DEC	.035815	
1063	27,7343	02161 0	DEC	.069422	
1064	27,7344	03260 0	DEC	.104519	
1065	27,7345	03717 0	DEC	.122	
1066	27,7346	05411 0	DEC	.172407	
1067	27,7347	10057 1	DEC	.252852	
1068	27,7350	13476 0	DEC	.363148	
1069	27,7351	20324 0	DEC	.512963	
1070	27,7352	21677 1	DEC	.558519	
1071	27,7353	21677 1	DEC	.558519	END OF STORED REFERENCE

L RE-ENTRY CONTROL

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P1073 CONTINUATION OF RE-ENTRY SECTION IN 2ND BANK. (CONSTANTS AND M923=8)

1074		30,7042		BANK	30	
1080		30,7042	37777 1	NEARONE	2DEC	.999999999
C1080		30,7043	37777 1			
1081		30,7044	12525 0	1/3RD	2DEC	.333333333 ONE THIRD
C1081		30,7045	12525 0			
1082		30,7046	02525 1	1/12TH	2DEC	.083333333 ONE TWELFTH
C1082		30,7047	12525 0			
R1083		VSAT = 25766.1973 FT/SEC.				

R1084 RE = 21,202,900 FEET

1085		30,7050	03146 1	LEWD1	2DEC	.1	
C1085		30,7051	14632 0				
1086		30,7052	06314 1	LEWD2	2DEC	.2	2
C1086		30,7053	31463 1				
1087		30,7054	10000 0	FOURTH	2DEC	.25	
C1087		30,7055	00000 1				
1088		30,7056	00000 1	3ZEROS	2DEC	0	
C1088		30,7057	00000 1				
1089		30,7060	00000 1	1BITDP	2OCT	00000 00001	DOUBLE PREC 1 BIT
C1089		30,7061	00001 0				
1090		30,7062	00000 1		DEC	0	
1091		30,7063	07777 1	NEAR1/4	2OCT	07777 00000	1/4 LESS 1 BIT IN UPPER PART.
C1091		30,7064	00000 1				
1092		30,7065	00236 0	C18	2DEC	.0097026346	500/2VS
C1092		30,7066	36763 0				
1093		30,7067	00012 1	KDMIN	2DEC	.00062111801	.5/805
C1093		30,7070	05512 1				
1094		30,7071	02000 0	C1/16	2DEC	.0625	1/16
C1094		30,7072	00000 1				
1096		30,7073	76407 0	Q2	2DEC	-.046388889	-1002/21600 = (643/21600 - Q2(23500/2VS))
C1096		30,7074	76670 1				
1097		30,7075	05260 0	Q3	2DEC	.167003132	.07 2VS/21600
C1097		30,7076	05572 1				
1098		30,7077	12343 0	Q5	2DEC	.326388889	.3 23500/21600
C1098		30,7100	21616 0				
1099		30,7101	01073 1	Q6	2DEC	.034893617	820/23500
C1099		30,7102	26234 0				
1100		30,7103	00172 0	Q7F	2DEC	.0074534161	6/805 (VALUE OF Q7 IN FIXED MEM.)
C1100		30,7104	03571 1				
1102		30,7105	13132 0	VMIN	2DEC	.34929485	18000/2VS
C1102		30,7106	33062 0				
1103		30,7107	00160 0	C12	2DEC	.00684572901	32 28500/(21102900 2 PI)
C1103		30,7110	05104 1				
1105		30,7111	11322 1	KB1	2DEC	.29411765	1/3.4
C1105		30,7112	32265 1				
1106		30,7113	75047 0	KB2	2DEC	-.0057074322 B4	-16/(.0034 2 VS)
C1106		30,7114	72454 1				

L	RE-ENTRY CONTROL						USER'S OWN PAGE NO. 40
1107		30,7115	05125 1	C19	2DEC	.16149068	130/805
C1107		30,7116	33500 1				
1108		30,7117	00475 1	VCORLIM	2DEC	.019405269	1000/2VS
C1108		30,7120	35746 1				
1109	REF 2 LAST 714	30,7117	VQUIT	EQUALS	VCORLIM		BOTH ARE 1000 FT/SEC
1111		30,7121	06751 1	C20	2DEC	.21739130	(175 FPS) LIFT UP IF ABOVE C20
C1111		30,7122	27515 0				
1112		30,7123	00001 0	25NM	2DEC	.0011574074 B-4	25/(21600 16) (25 NAUT MILES)
C1112		30,7124	05732 1				
1113		30,7125	01003 0	K1D	2DEC	.0314453125	.01 805/256
C1113		30,7126	06315 0				
11135		30,7127	71435 0	K2D	2DEC	-.201298418	-.001 2VS/256
C11135		30,7130	75516 1				
1114		30,7131	32047 0	KVSCALE	2DEC	.81491944	12800/(2 VS .3048)
C1114		30,7132	24367 0				
1115		30,7133	37200 1	KASCALE	2DEC	.97657358	5.85 16384/(4 .3048 100 805)
C1115		30,7134	05636 1				
1116		30,7135	00046 0	KTETA	2DEC*	.383495203 E2 B-14*	1000 2PI/16384(163.84)
C1116		30,7136	13137 0				
1117		30,7137	00017 1	KT	2DEC*	.157788327 E2 B-14*	RE(2PI)/2VS(16384)163.84
C1117		30,7140	30730 0				
11175		30,7141	00040 0	.05G	2DEC	.002	.05/25
C11175		30,7142	30447 0				
1118		30,7143	11463 0	LAD	2DEC	.3	
C1118		30,7144	06315 0				
1119		30,7145	00023 0	LAD/256	2DEC	.001171875	.3/256
C1119		30,7146	06315 0				
1120		30,7147	00314 1	KLAT	2DEC	.0125	
C1120		30,7150	31463 1				
1121		30,7151	00000 1	LATBIAS	2DEC	.00003	APPRX .5 NM/ 4(21600/2 PI)
C1121		30,7152	17565 1				
1122		30,7153	03657 0	KWE	2DEC	.120056652	
C1122		30,7154	00206 0				
1123		30,7155	00121 0	KACOS	2DEC	.004973592	1/32(2PI)
C1123		30,7156	17460 0				
1126		30,7157	01000 0	CHOOK	2DEC	1 B-5	.25/8
C1126		30,7160	00000 1				
1127		30,7161	04000 0	1/8TH	2DEC	.125	
C1127		30,7162	00000 1				
1128		30,7163	07534 1	CH1	2DEC	.24	8 CH1/ 25 (CH1 = .75)
C1128		30,7164	05075 0				
1129		30,7165	75267 0	KC3	2DEC	-.082540747	KC3 (2VS)SQ /2PI 25 32.2 LAD R
C1129		30,7166	64700 1				
1130		30,7167	05605 1	LOD	2DEC	.18	
C1130		30,7170	03656 1				
1131		30,7171	00336 1	VRCONT	2DEC	.0135836886	700/2 VSAT
C1131		30,7172	21610 0				
1132		30,7173	20000 0	HALVE	2DEC	.5	
C1132		30,7174	00000 1				

L RE-ENTRY CONTROL

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1133 REF 3 LAST 728

27,7202 NEG1/8 EQUALS K3ROLL

ONLY A SINGLE PRECISION NUMBER.

1134	30,7175	11207 1	L/DCMINR	2DEC	.2895	LAD COS(15 DEG)
C1134	30,7176	05301 0				
1135	30,7177	77700 0	C/D0	2DEC	-.00387019231	
C1135	30,7200	62716 0				
1138	30,7201	06314 1	GMAX/2	2DEC	.2	5/25
C1138	30,7202	31463 1				
1139	30,7203	14631 0	1/GMAX	2DEC	.4	
C1139	30,7204	23146 0				
1140	30,7205	00433 0	2H5	2DEC	.0172786611	2 28500 25 32.2/(4 VS VS)
C1140	30,7206	02775 0				
1141	30,7207	00000 1	2H5GMXSQ	2DEC	.000047768341	((2 28500 322/(4VS VS))SQ
C1141	30,7210	31027 0				
1142	30,7211	04555 0	KWIEM	2DEC	.147323336	RESULT IN METERS OVER 12800
C1142	30,7212	27667 0				
1143	30,7213	37173 0	COS(13)	2DEC	.9763	REAL COS OF 12.5 DEG. NOT 1/2 COSINE.
C1143	30,7214	26300 0				
1144	30,7215	71045 0	-SIN(13)	2DEC	-.21644	REAL SIN OF 12.5 DEG. NO FACTOR OF 1/2
C1144	30,7216	73065 0				
1145	30,7217	00541 1	2C1H5	2DEC	.0215983264	2 1.25 28500 805/(2 VS)SQ
C1145	30,7220	33575 0				
1146	30,7221	02233 1	2C1HSLAD	2DEC	.071994421	2 1.25 28500 805/(.3 4 VS VS)
C1146	30,7222	21637 0				
1147	30,7223	03146 1	POINT1	2DEC	.1	
C1147	30,7224	14632 0				
1148	30,7225	00034 0	K44	2DEC	.00175626224	2 VS/(156 57.3 57.3 57.3)
C1148	30,7226	30623 0				
1149	30,7227	17414 0	VFINAL	2DEC	.48513173	25000/2 VS
C1149	30,7230	14575 0				
1150	30,7231	02436 1	KAT	2DEC	.08	2 G-5 (2/25)
C1150	30,7232	27024 1				
11502	30,7233	31463 1	POINT8	2DEC	.8	
C11502	30,7234	06315 0				
11504	30,7235	06314 1	POINT2	2DEC	.2	
C11504	30,7236	31463 1				
11506	30,7237	01310 1	Q7MIN	2DEC	.043478261	35/805
C11506	30,7240	13103 1				
11508	30,7241	00146 1	PT1/16	2DEC	.00625	
C11508	30,7242	14632 0				
R1151	... END OF RE-ENTRY CONSTANTS ...					

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 42

P1169 CLOSED SUBROUTINE TO COMPUTE DESIRED NAV BASE ORIENTATION
R1170 NEEDED DURING ENTRY PHASE.

R1171 ENTER WITH VN, UNITR, UNITW, AND ROLLC
R1172 COMPUTES UXNB, UYNB, AND UZNB. (NAV BASE UNIT VECTORS)

1173			30,7243	76573 1	GETUNB	RTB	3	RESET PUSH COUNTER.
1174			30,7244	41766 0		VXV	VXSC	GET VELOCITY OF ATMOSPHERE
1175			30,7245	50753 0		VAD	UNIT	GET UVA., RELATIVE VELOCITY
1176			30,7246	75776 0		VXSC		RESOLVE BY COS OF 13 DEG.
1177	REF	22 LAST 720	30,7247	20265 1			FRESHPD	
1178	REF	21 LAST 723	30,7250	01016 1			UNITR	
1179	REF	5 LAST 700	30,7251	01044 0			UNITW	NEG OF REAL VEL.
1180	REF	1	30,7252	21212 0			KWIEM	EARTH RATE CONST IN METERS X 4.
1181	REF	27 LAST 694	30,7253	00774 0			VN	
1182	REF	1	30,7254	21214 0			COS(13)	UVA COS(13) INTO PD.
1183			30,7255	47575 0		NOLOD	1	
1184			30,7256	41753 0		VXV	UNIT	UYA = UNIT(VA*RN)
1185	REF	22 LAST 739	30,7257	01016 1			UNITR	
1186			30,7260	32021 0		STORE	16D	UYA INTO LOC 16 OF VAC AREA.
1187			30,7261	45176 0		DMOVE	0	SAVE ROLLC SO THAT IT CANNOT CHANGE
1188	REF	5 LAST 727	30,7262	01473 0			ROLLC	DURING THIS SUBROUTINE
1189	REF	2 LAST 729	30,7263	32017 0		STORE	ROLLCTEM	INTO LOC 14 OF PUSH LIST
1190			30,7264	47575 0		NOLOD	1	COS(ROLLC)
1191			30,7265	55166 0		COS	VXSC	UYA COS(ROLLC). PUSH INTO LOC 6.
1192			30,7266	00021 1			16D	
11924			30,7267	57176 0		SIN	0	
11926	REF	3 LAST 739	30,7270	00017 1			ROLLCTEM	SIN(ROLLC) INTO PD AT LOC 12.
1193			30,7271	41774 0		VXV	2	UNA = UNIT(UYA*UVA)
1194			30,7272	73166 1		UNIT	VXSC	UNB = UYA COS(ROLL) + UNA SIN(ROLL)
1195			30,7273	50753 0		VAD	UNIT	UNIT COULD BE REPLACED BY VSLT 1.
1196			30,7274	00021 1			16D	UYA STORED AT LOC 16
1197			30,7275	00001 0			0	UVA FIRST ITEM INTO PUSH LIST
1198	REF	1	30,7276	33505 1		STORE	UYNB	1 SCAL AND 1 VEC FROM PD.
1199			30,7277	47574 1		NOLOD	2	
1200			30,7300	41753 0		VXV	UNIT	UN = UNIT (UYNB*UVA)
1201			30,7301	75762 0		VXSC	VSU	UXNB = -UN SIN(13) - UVA COS(13)
1202			30,7302	00001 0			0	
1203	REF	1	30,7303	21216 1			-SIN(13)	PULLS UVA COS(13) FROM PD.
1204	REF	1	30,7304	33477 0		STORE	UXNB	
1205			30,7305	47575 0		NOLOD	1	

L RE-ENTRY CONTROL

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1206			30,7306	41622 1	VXV	VSLT
1207	REF	2 LAST 739	30,7307	01505 0		UYNB
1208			30,7310	00002 0		1
1209	REF	1	30,7311	33513 0	STORE	UZNB

UZNB = UXNB*UYNB

1210			30,7312	40576 1	ITCQ	0
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AND RETURN.

12105			0016	ROLLCTEM	EQUALS	14D
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L RE-ENTRY CONTROL

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P1300 SUBROUTINE TO READ PIPA COUNTERS, TRYING TO BE VERY CAREFUL SO THAT
R1301 IT WILL BE RESTARTABLE.

R1302 (ARRIVE IN INTERRUPTED STATE OR INHIBITED AFTER RESTART.)
R1303 (EXIT IS THRU ISWRETRN)

1304	REF	222	LAST	714	30,7313	4	5501	1	PIPASR	CS	ZERO	PUT THESE INTO THE IMPOSSIBLE STATE
1305	REF	1			30,7314	5	1031	1		TS	TEMX	FOR THEIR INITIAL VALUES.
1306	REF	1			30,7315	5	1032	1		TS	TEMY	
1307	REF	1			30,7316	5	1033	0		TS	TEMZ	
1308	REF	223	LAST	741	30,7317	3	5501	0		CAF	ZERO	
1309	REF	14	LAST	699	30,7320	5	1002	1		TS	DELVX + 1	
1310	REF	11	LAST	699	30,7321	5	1004	1		TS	DELVY + 1	PIP COUNTERS MAY NOT HAVE POS ZERO IN
1311	REF	9	LAST	699	30,7322	5	1006	0		TS	DELVZ + 1	
1312	REF	4	LAST	699	30,7323	5	1035	0		TS	PIPAGE	ZERO THIS TO INDICATE IN PIPA READING.
1313	REF	12	LAST	571	30,7324	0	2677	0	REPIP1	TC	READTIME + 1	PROBABLY NOT NEEDED SINCE NOT MUCH
1314	REF	40	LAST	580	30,7325	4	0573	1		CS	RUPTSTOR + 1	CHANCE OF TIME1 OVERFLOWING NOW. (BUT
1315	REF	14	LAST	704	30,7326	5	1465	1		TS	PIPTIME + 1	JUST POSSIBLE IF MANY RESTARTS.
1316	REF	41	LAST	741	30,7327	4	0572	0		CS	RUPTSTOR	
1317	REF	15	LAST	741	30,7330	5	1464	0		TS	PIPTIME	
1318	REF	16	LAST	731	30,7331	4	0044	0		CS	PIPAX	
1319	REF	1			30,7332	5	1034	1		TS	TEMXY	
1320	REF	2	LAST	741	30,7333	3	1031	1		XCH	TEMX	PUT NEGZERO INTO PIPACTRS AS READ.
1321	REF	17	LAST	741	30,7334	3	0044	1		XCH	PIPAX	
1322	REF	15	LAST	741	30,7335	5	1001	1	REPIP1B	TS	DELVX	
1323	REF	16	LAST	741	30,7336	5	1002	1		TS	DELVX + 1	DOUBLE SAVE.
1324	REF	13	LAST	731	30,7337	4	0045	1	REPIP2	CS	PIPAY	
1325	REF	2	LAST	741	30,7340	5	1034	1		TS	TEMXY	
1326	REF	2	LAST	741	30,7341	3	1032	1		XCH	TEMY	
1327	REF	14	LAST	741	30,7342	3	0045	0		XCH	PIPAY	
1328	REF	12	LAST	741	30,7343	5	1003	0	REPIP2B	TS	DELVY	
1329	REF	13	LAST	741	30,7344	5	1004	1		TS	DELVY + 1	
1330	REF	9	LAST	731	30,7345	4	0046	1	REPIP3	CS	PIPAZ	REPEAT PROCESS FOR Z PIPA.
1331	REF	3	LAST	741	30,7346	5	1034	1		TS	TEMXY	SAVE NEG OF PIPA READ
1332	REF	2	LAST	741	30,7347	3	1033	0		XCH	TEMZ	SAVE HERE AS PICK UP NEGZERO
1333	REF	10	LAST	741	30,7350	3	0046	0		XCH	PIPAZ	RESETTING PIPA AS READ OUT)
1334	REF	10	LAST	741	30,7351	5	1005	0	REPIP3B	TS	DELVZ	AND STORE IN Z.
1335	REF	11	LAST	741	30,7352	5	1006	0		TS	DELVZ + 1	SHOWS THAT IT REALLY MADE IT.
1336	REF	224	LAST	741	30,7353	4	5501	1	REPIP4	CS	ZERO	LEAVE THESE AT NEGZERO
1337	REF	17	LAST	741	30,7354	5	1002	1		TS	DELVX + 1	
1338	REF	14	LAST	741	30,7355	5	1004	1		TS	DELVY + 1	
1339	REF	12	LAST	741	30,7356	5	1006	0		TS	DELVZ + 1	
13392	REF	30	LAST	688	30,7357	4	4516	0		CS	BIT1	
13393	REF	7	LAST	727	30,7360	7	0675	1		MASK	TMMARKER	
13394	REF	31	LAST	741	30,7361	6	4516	1		AD	BIT1	SET BIT 1 IN TM MARKER.

L RE-ENTRY CONTROL

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13395	REF	8	LAST	741	30,7362	5	0675	0
1340	REF	4	LAST	139	30,7363	0	5761	1

TS	TMMARKER
TC	ISWRETRN

AND EXIT. SHOULD HAVE COME THRU ICALL

L RE-ENTRY CONTROL

USER'S OWN PAGE NO. 46

P1341 ROUTINE TO RESTART IF READING PIPA COUNTERS.

1346	REF	5 LAST 741	30,7364	1 1035 1	REPIPASR	CCS	PIPAGE	WAS I READING PIPS.
1347	REF	5 LAST 698	30,7365	0 7313 1		TC	PIPASR	NO.. PIPAGE = PLUS CONST.
1348	REF	13 LAST 741	30,7366	1 1006 1		CCS	DELVZ + 1	PIPAGE = 0 (I WAS READING PIPS.)
1349	REF	1	30,7367	0 7353 0		TC	REPIP4	Z WAS READ OK.
1350			30,7370	0 7373 1		TC	+3	Z NOT DONE, CHECK Y.
1351	REF	2 LAST 743	30,7371	0 7353 0		TC	REPIP4	
1352	REF	3 LAST 743	30,7372	0 7353 0		TC	REPIP4	
1353	REF	15 LAST 741	30,7373	1 1004 0		CCS	DELVY + 1	HAS IT CHANGED FROM ITS +ZERO INIT VALU
1354			30,7374	0 7377 0		TC	+3	YES, Y DONE. TRY TO REDO Z.
1355	REF	1	30,7375	0 7406 1		TC	CHKDELVX	NO, GO LOOK AT X.
1356			30,7376	0 7377 0		TC	+1	YES.
1357	REF	3 LAST 741	30,7377	1 1033 1		CCS	TEMZ	DOES TEMZ STILL = -0.
1358			30,7400	0 7404 0		TC	+4	NO TRY TO RESTORE
1359			30,7401	0 7404 0		TC	+3	
1360			30,7402	0 7404 0		TC	+2	
1361	REF	1	30,7403	0 7345 1		TC	REPIP3	YES, GO BACK AND READ Z AGAIN.
1362	REF	4 LAST 741	30,7404	4 1034 0		CS	TEMXY	MUCH MORE LOGIC COULD BE INCORPORATED
1363	REF	1	30,7405	0 7351 1		TC	REPIP3B	TO CHECK PIPA CTR FOR SIZE.
1364	REF	18 LAST 741	30,7406	1 1002 0	CHKDELVX	CCS	DELVX + 1	HAS THIS CHANGED.
1365			30,7407	0 7412 1		TC	+3	YES
1366	REF	1	30,7410	0 7421 1		TC	CHKTEMX	NO.
1367			30,7411	0 7412 1		TC	+1	YES
1368	REF	3 LAST 741	30,7412	1 1032 0		CCS	TEMY	
1369			30,7413	0 7417 1		TC	+4	
1370			30,7414	0 7417 1		TC	+3	
1371			30,7415	0 7417 1		TC	+2	
1372	REF	1	30,7416	0 7337 1		TC	REPIP2	
1373	REF	5 LAST 743	30,7417	4 1034 0		CS	TEMXY	
1374	REF	1	30,7420	0 7343 1		TC	REPIP2B	
1375	REF	3 LAST 741	30,7421	1 1031 0	CHKTEMX	CCS	TEMX	HAS THIS CHANGED.
1376			30,7422	0 7426 0		TC	+4	YES
1377			30,7423	0 7426 0		TC	+3	YES
1378			30,7424	0 7426 0		TC	+2	YES
1379	REF	1	30,7425	0 7324 0		TC	REPIP1	NO
1380	REF	6 LAST 743	30,7426	4 1034 0		CS	TEMXY	
1381	REF	1	30,7427	0 7335 0		TC	REPIP1B	

L RE-ENTRY CONTROL

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P3000 ENTRY INITIALIZATION ROUTINE.

R3001										
3002	REF	32	LAST 727	30,7430	0 2276 0	STARTENT	TC	PHASCHNG		KEEP UPTHETA RUNNING IN CASE OF RESTART.
3004				30,7431	03204 1		OCT	03204		4.26 RESTART.
3006	REF	33	LAST 744	30,7432	0 2276 0		TC	PHASCHNG		PICK UP CURRENT STRING AT NEWMODE63.
3008				30,7433	02305 0		OCT	02305		5.19 RESTART. RESYNCING PIPUP ALSO.
3010				30,7434	2 0017 0		INHINT			
3012	REF	4	LAST 729	30,7435	3 2150 1		CAF	PRI014		ESTABLISH UPTHETA FOR 1ST TIME.
3015	REF	34	LAST 729	30,7436	0 2046 1		TC	FINDVAC		
3020	REF	3	LAST 729	30,7437	57101 0		CADR	UPHETA1		START UPTHETA JOB.
3025				30,7440	2 0016 1		RELINT			
3030	REF	43	LAST 722	30,7441	0 2362 1	NUMODE63	TC	NEWMODE		
3035				30,7442	00063 1		OCT	00063		ENTRY PHASE = MODE 63
3040	REF	1		30,7443	3 7516 1		CAF	INITCADR		
3045	REF	9	LAST 722	30,7444	5 1374 0		TS	GOTOADDR		
3050	REF	1		30,7445	3 7517 0		CAF	EARGCADR		
3055	REF	1		30,7446	5 1042 0		TS	CALCG		
3060	REF	225	LAST 741	30,7447	3 5501 0		CAF	ZERO		
3065	REF	3	LAST 699	30,7450	5 1350 0		TS	TENTRY		
3066	REF	5	LAST 729	30,7451	5 1352 1		TS	ROLLBIAS		
3070	REF	1		30,7452	3 7520 1		CAF	NUDELTAT		
3075	REF	12	LAST 645	30,7453	5 1027 0		TS	DELTAT		
3080	REF	1		30,7454	3 7521 0		CAF	NU/PIPD		
3085	REF	7	LAST 594	30,7455	5 0755 0		TS	1/PIPADT		
3086	REF	1		30,7456	4 7522 1		CS	ENTMASK		
30865				30,7457	2 0017 0		INHINT			
3087	REF	36	LAST 625	30,7460	7 0645 1		MASK	STATE		
3088	REF	1		30,7461	6 7523 1		AD	ENTRYSW		
3089	REF	37	LAST 744	30,7462	5 0645 0		TS	STATE		
30895				30,7463	2 0016 1		RELINT			
3125	REF	103	LAST 729	30,7464	0 4000 0		TC	INTPRET		
3130				30,7465	76574 0		RTB	2		SET CDUX AGAIN JUST IN CASE.
3135				30,7466	41612 1		VXV	DOT		
3140				30,7467	47171 0		COMP	RTB		
3145	REF	2	LAST 630	30,7470	20721 1			CDUXFIX		
3150	REF	28	LAST 739	30,7471	00774 0			VN		
3155	REF	23	LAST 739	30,7472	01016 1			UNITR		
3160	REF	6	LAST 654	30,7473	01115 0			RTINIT		THIS GIVES LATANG.
3165	REF	3	LAST 725	30,7474	20607 1			SIGNMPAC		GETS SIGN OF MPAC
3170	REF	7	LAST 728	30,7475	33373 0		STORE	K2ROLL		K2ROLL = - SIGN(LATANG)
3175				30,7476	42775 1		DOT	1		
3180				30,7477	63703 0		TSLT	ACOS		
3185	REF	24	LAST 744	30,7500	01016 1			UNITR		
3190	REF	7	LAST 744	30,7501	01115 0			RTINIT		

6 INITIALIZE SWITCHES (BITS 6:10,15 IN STATE) 6=GONEPAST,7=RELVELSW,8=EGSW
9=HUNTSW1, 10=HIND, 15=INRLSW
ALL BUT RELVELSW SET TO NON-BRANCH (1)

L RE-ENTRY CONTROL

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3195			30,7502	00002 0		1
3200	REF	8 LAST 724	30,7503	33111 0	STORE	THETAH
3205			30,7504	75176 0	VMOVE	0
3210	REF	4 LAST 723	30,7505	01215 0		RT
3215	REF	8 LAST 744	30,7506	33115 1	STORE	RTINIT
3220			30,7507	47176 1	COMP	0
3225	REF	10 LAST 704	30,7510	01145 0		DTEAROT
3230	REF	11 LAST 745	30,7511	33145 1	STORE	DTEAROT
3235			30,7512	76776 0	ITC	0
3240	REF	4 LAST 582	30,7513	13450 1		EARROT1
3245			30,7514	76576 1	RTB	0
3250	REF	2 LAST 721	30,7515	17033 1		OVERNOUT
3255	REF	1	30,7516	62701 0	INITCADR	CADR INITROLL
3260	REF	1	30,7517	61664 1	EARGCADR	CADR CALCGEAR
3261			30,7520	14400 0	NUDELTAT	DEC 200 B5
3262			30,7521	31000 0	NU/PIPD	DEC 200 B6
3264			30,7522	01741 1	ENTMASK	OCT 01741
3265			30,7523	01341 0	ENTRYSW	OCT 01341

EXIT SETTING RESTART BITS TO 5.12 FOR EN

6

L AVERAGE G INTEGRATOR

USER'S OWN PAGE NO. 1

R0001 ROUTINE CALCRVG INTEGRATES THE EQUATIONS OF MOTION BY AVERAGING THE THRUST AND GRAVITATIONAL ACCELE-
 R0003 TIONS OVER A TIME INTERVAL, DELTAT
 R0004 FOR THE EARTH-CENTERED GRAVITATIONAL FIELD THE PERTURBATION DUE TO OBLATENESS IS COMPUTED TO THE FIRST
 R0006 HARMONIC COEFFICIENT J
 R0007 ROUTINE NORMLISE MUST BE CALLED PRIOR TO THE FIRST ENTRY INTO CALCRVG. IT REQUIRES RN SCALED TO $2(+29)M$
 R0009 IT LEAVES RN NORMALISED, SO THAT THE SCALED MAGNITUDE OF THE VECTOR CONTAINS ONE LEADING ZERO, BY SHIFTING THE
 R0011 VECTOR LEFT N BINARY PLACES
 R0012 ROUTINE CALCRVG REQUIRES
 R0013 1) THRUST ACCELERATION INCREMENTS IN DELV SCALED SAME AS PIPAX,Y,Z
 R0015 2) VN SCALED AT $2(+7) M/CS$
 R0016 3) ADDRESS OF CALCGLUN OR CALCGEAR IN CALCG
 R0017 4) DELTAT SCALED AT $2(+9) CS$
 R0018 5) PUSH-DOWN COUNTER SET TO ZERO
 R0019 IT LEAVES UPDATED RN, SCALED AT $2(29-N) M$, VN, AND GRAVITY SCALED AT $2(-5) M/CS/CS$

R0021 CONTINUE ON IN BANK 30.

0022		30,7524	71173 1	NORMLISE	ABVAL	3	COUNT NUMBER OF LEADING ZEROS IN
0023		30,7525	57715 0		TSLC	INCR,1	ABVAL (RN) AND STORE -N(=2-M) IN NSHIFT
0024		30,7526	67515 1		SXA,1	INCR,1	RN MUST BE SCALED AT $2(+29)M$
0025		30,7527	67425 0		SXA,1	ITA	
0026	REF 24 LAST 697	30,7530	00766 0			RN	
0027	REF 14 LAST 684	30,7531	00047 1			X1	
0028		30,7532	00003 1			2	
0029	REF 1	30,7533	01041 0			NSHIFT	SAVE C(X1)=-N
0030		30,7534	00017 1			14D	
0031	REF 2 LAST 639	30,7535	01042 0			XSHIFT	SAVE C(X1) =14-N
0032	REF 26 LAST 646	30,7536	00052 0			S2	
0033		30,7537	75175 0		VMOVE	1	
0034		30,7540	44376 0		VSLT*		
0035	REF 25 LAST 746	30,7541	00766 0			RN	
0036		30,7542	00035 1			14D,1	
0037	REF 26 LAST 746	30,7543	32766 1		STORE	RN	RN SCALED AT $2(29-N)METRES$
0038		30,7544	76776 0		ITC	0	
0039	REF 1	30,7545	21645 0			CALCGRV1	
0040		30,7546	44576 0		ITCI	0	
0041	REF 27 LAST 746	30,7547	00052 0			S2	

L AVERAGE G INTEGRATOR

USER'S OWN PAGE NO. 2

0042				30,7550	75776 0	CALCRVG	VXSC	0	
0043	REF	20	LAST	701	30,7551			DELV	
0044	REF	3	LAST	645	30,7552			KPIP	DV TO PD SCALED AT 2(+4)M/CS
0045				30,7553	75775 0		VXSC	1	
0046				30,7554	73432 0		LXA,1	BVSU	
0047	REF	2	LAST	639	30,7555			GRAVITY	
0048	REF	13	LAST	744	30,7556			DELTAT	
0049	REF	3	LAST	746	30,7557			XSHIFT	
0050				30,7560	00001 0			0	(DV-(OLD GDT))/2 TO PD SCALED 2(+3)M/CS
0051				30,7561	47573 0		NOLOD	3	
0052				30,7562	45642 0		VSRT	VAD	
0053				30,7563	75620 1		VXSC	VSLT*	
0054				30,7564	50625 0		VAD	ITA	
0055				30,7565	00005 1			4	
0056	REF	29	LAST	744	30,7566			VN	
0057	REF	14	LAST	747	30,7567			DELTAT	
0058				30,7570	00001 0			0,1	
0059	REF	27	LAST	746	30,7571			RN	
0060	REF	28	LAST	746	30,7572			S2	
0061	REF	1		30,7573	33300 1		STORE	RN1	SCALED AT 2(29-N) METERS
0062				30,7574	76776 0		ITC	0	
0063	REF	2	LAST	746	30,7575			CALCGRV1	
0064				30,7576	47573 0		NOLOD	3	
0065				30,7577	75632 1		VXSC	BVSU	
0066				30,7600	50626 0		VAD	VSRT	
0067				30,7601	50776 1		VAD		
0068	REF	15	LAST	747	30,7602			DELTAT	
0069				30,7603	77777 0			-	(DV-(OLD GDT))/2
0070				30,7604	77777 0			-	DV/2
0071				30,7605	00005 1			4	
0072	REF	30	LAST	747	30,7606			VN	
0073	REF	1		30,7607	33306 1		STORE	VN1	SCALED AT 2(+7) MET/CS
R0074	IN AVERAGE G, UP THE PHASE BITS BY 2 OF ACTIVE PRDG BEFORE COPY CYCLE.								
0075				30,7610	77576 0		EXIT	0	
0076	REF	49	LAST	716	30,7611	2 0067 1		INDEX	FIXLOC
0077	REF	29	LAST	747	30,7612	4 0051 1		CS	S2
0078	REF	1		30,7613	5 1313 1	CALCRVG2	TS	AVGRETRN	SAVE NEG RETURN ADDRESS IN NON-VAC AREA. SAVE NEGATIVE OF RETURN ADDRESS.
0079	REF	4	LAST	146	30,7614	4 0662 1		CS	-PHASE1 + 4
0080	REF	224	LAST	723	30,7615	6 4516 1		AD	ONE
0081	REF	70	LAST	722	30,7616	0 2312 0		TC	NEWPHASE
0082				30,7617	00005 1		OCT	00005	PICK UP PHASE5. INCREMENT BY 1. AND CALL ROUTINE TO CHANGE PHASE.

L AVERAGE G INTEGRATOR

USER'S OWN PAGE NO. 3

0083		30,7620	2 0017 0	REFAZE6	INHINT	
0084	REF 1	30,7621	3 7641 0	CAF	ELEVEND	
0085	REF 525 LAST 729	30,7622	5 0115 1	TS	MPAC	USE MPAC FOR LOOP COUNTER.
0086	REF 526 LAST 748	30,7623	2 0115 0	INDEX	MPAC	
0087	REF 2 LAST 747	30,7624	4 1277 0	CS	RN1	RN1 AND VN1 MUST BE IN ORDER.
0088		30,7625	4 0000 0	COM		LEAVE RN1 ALONE IN CASE OF RESTARTS.
0089	REF 527 LAST 748	30,7626	2 0115 0	INDEX	MPAC	SELECT THE RIGHT TERM.
0090	REF 28 LAST 747	30,7627	5 0765 0	TS	RN	...AND GO THRU COPY CYCLE.
0091	REF 528 LAST 748	30,7630	1 0115 0	CCS	MPAC	ARE WE DONE..
0092	REF 5 LAST 134	30,7631	0 7622 0	TC	REFAZE6 + 2	NO, NOT YET.
0093	REF 17 LAST 688	30,7632	4 4515 0	CS	BIT2	YES, MPAC = 0.
0094	REF 9 LAST 742	30,7633	7 0675 1	MASK	TMMARKER	
0095	REF 18 LAST 748	30,7634	6 4515 1	AD	BIT2	SET BIT 2 TO ONE IN TMMARKER.
0096	REF 10 LAST 748	30,7635	5 0675 0	TS	TMMARKER	
A0097						WHAT ABOUT GRAVITY FOR RESTART..
0098		30,7636	2 0016 1	RELINT		
0099	REF 2 LAST 747	30,7637	4 1313 0	CS	AVGRETRN	NEG OF ADDRESS WAS STORED.
0100	REF 20 LAST 551	30,7640	0 5723 1	TC	BANKJUMP	
0101		30,7641	00013 0	ELEVEND	DEC 11	11D (ELEVEN DECIMAL, OF COURSE.)
0102		30,7642	73576 1	CALCGRV	LXA,1 0	
0103	REF 4 LAST 747	30,7643	01042 0		XSHIFT	
0104		30,7644	47575 0	CALCGRV1	NLOD 1	
0105		30,7645	73176 0		UNIT	
0106	REF 25 LAST 744	30,7646	33016 0		STORE UNITR	
0107		30,7647	45175 0	DMOVE	1	
0108		30,7650	63776 1	TSLT		
01081		30,7651	00037 0		30D	
01082		30,7652	00002 0		1	
0109	REF 12 LAST 694	30,7653	33024 1	STORE	RMAG	SCALED AT 2(30-N)M
0110		30,7654	63776 1	TSLT	0	
0111		30,7655	00035 1		28D	
0112		30,7656	00003 1		2	
0113	REF 2 LAST 640	30,7657	33026 0	STORE	RMAGSQ	SCALED AT 2(+50)M(+2)
0114		30,7660	45575 1	ITA	1	
0115		30,7661	61576 1	XAD,1		
0116		30,7662	00034 0		27D	
0117	REF 2 LAST 746	30,7663	01041 0		NSHIFT	

L		AVERAGE G INTEGRATOR				USER'S OWN PAGE NO.		4
0119				30,7664	42776 1	CALCGEAR DOT	0	
0120	REF	26	LAST 748	30,7665	01016 1		UNITR	
0121	REF	6	LAST 739	30,7666	01044 0		UNITW	
0122				30,7667	32032 1	STORE	25D	
0123				30,7670	47574 1	NOLOD	2	
0124				30,7671	51122 1	DSQ	DMP	
0125				30,7672	63726 1	TSLT	BDSU	
0126	REF	1		30,7673	21746 1		DP(5/8)	
0127				30,7674	00005 1		4	
0128	REF	1		30,7675	21744 0		DP2(-3)	
0129				30,7676	62775 0	DDV	1	
0130				30,7677	63376 0	TSLT*		
0131	REF	1		30,7700	21754 1		J(RE)SQ	SCALED AT 2(+40) M(+2)
0132	REF	3	LAST 748	30,7701	01026 1		RMAGSQ	
0133				30,7702	00001 0		0,1	
0134				30,7703	32030 0	STORE	23D	J(RE/RN) SQ SCALED AT 2(-3)
0135				30,7704	47574 1	NOLOD	2	
0136				30,7705	64766 1	DMP	VXSC	
0137				30,7706	50776 1	VAD		
0138				30,7707	77777 0		-	
0139	REF	27	LAST 749	30,7710	01016 1		UNITR	
0140	REF	28	LAST 749	30,7711	01016 1		UNITR	
0141				30,7712	64775 0	DMP	1	
0142				30,7713	75642 0	VXSC	VAD	
0143				30,7714	00030 1		23D	
0144				30,7715	00032 0		25D	
0145	REF	7	LAST 749	30,7716	01044 0		UNITW	
0146				30,7717	45175 0	DMOVE	1	
0147				30,7720	76776 0	ITC		
0148	REF	1		30,7721	21750 0		MUEARTH	
0149	REF	1		30,7722	21732 1		MU/RSQ	
0150				30,7723	75176 0	CALCGLUN VMOVE	0	
0151	REF	29	LAST 749	30,7724	01016 1		UNITR	
0152				30,7725	45175 0	DMOVE	1	
0153				30,7726	63576 0	INCR,1		
0154	REF	1		30,7727	21752 1		MUMOON	
0155				30,7730	00007 0		6	
0156				30,7731	47574 1	MU/RSQ NOLOD	2	
0157				30,7732	62714 1	DDV	TSLT*	
0158				30,7733	75776 0	VXSC		
0159	REF	4	LAST 749	30,7734	01026 1		RMAGSQ	C(X1)=14-2N (EARTH)
0160				30,7735	00013 0		5,1	=20-2N (MOON)

L	AVERAGE G INTEGRATOR					USER'S OWN PAGE NO.	5
0161	REF 3 LAST 747	30,7736	33010 0	STORE	GRAVITY	SCALED AT 2(-5) M/CS/CS	
0162		30,7737	44576 0	ITCI	0		
0163		30,7740	00034 0		27D		
0164		30,7741	23126 0	KPIP	2DEC	0.59904	
C0164		30,7742	25370 1				
0165		30,7743	04000 0	DP2(-3)	2DEC	0.125	
C0165		30,7744	00000 1				
0166		30,7745	24000 1	DP(5/8)	2DEC	0.625	
C0166		30,7746	00000 1				
0167		30,7747	00022 1	MUEARTH	2DEC	.009063188 B-3	SCALED AT 2(+45)M(+3)/CS(+2)
C0167		30,7750	21756 0				
0168		30,7751	00164 1	MUMOON	2DEC	0.007134481	4.90277800 E12 2(+36)M(+3)/CS(+2)
C0168		30,7752	34414 1				
0169		30,7753	00173 1	J(RE)SQ	2DEC	.06006663 B-3	SCALED AT 2(+43)M(+2)
C0169		30,7754	00416 1				

L AVERAGE G INTEGRATOR

USER'S OWN PAGE NO. 6

P0200 ROUTINE FOR FLIGHTS 501 & 2 TO INCORPORATE STATE VECTOR UPDATE DURING AVERAGE G. EACH PASS THROUGH
 R0202 SERVICER COMES HERE TO SEE IF AN UPDATE IS READY.

0203				26,7711		BANK	26	
0204				26,7711	66774 0	501UPCHK	DSJ	2
0205				26,7712	73615 1		BMN	TEST
02055				26,7713	66616 0		DSJ	BPL
0206	REF	16	LAST	741	26,7714			PIPTIME
0207	REF	3	LAST	263	26,7715			UPTIME
0208	REF	1			26,7716			REGSTEP
0209	REF	3	LAST	609	26,7717			UPDATFLG
0210	REF	2	LAST	751	26,7720			REGSTEP
02104	REF	1			26,7721			2.5SEC26
02108	REF	1			26,7722			BADUPTIM
0211					26,7723		MXV	1
0212					26,7724		VSLT	
0213	REF	23	LAST	609	26,7725			STBUFF +6
0214	REF	14	LAST	610	26,7726			REFSMMAT
0215					26,7727			1
0216	REF	2	LAST	747	26,7730		STORE	VN1
0217					26,7731		MXV	1
02175					26,7732		VSLT	
0218	REF	24	LAST	751	26,7733			STBUFF
0219	REF	15	LAST	751	26,7734			REFSMMAT
0220					26,7735			2
0221	REF	3	LAST	748	26,7736		STORE	RN1
0222					26,7737		ITC	0
0223	REF	7	LAST	697	26,7740			CALCGRV
0224					26,7741		EXIT	0
0225	REF	34	LAST	744	26,7742	0 2276 0	TC	PHASCHNG
0226					26,7743	03005 1	OCT	03005
0227	REF	18	LAST	613	26,7744	0 3430 0	TC	FLAG1DWN
0228					26,7745	20000 0	OCT	20000
0229	REF	28	LAST	687	26,7746	3 4476 0	CAF	POSMAX
0230	REF	4	LAST	751	26,7747	5 1671 0	TS	UPTIME
0231	REF	5	LAST	751	26,7750	5 1672 0	TS	UPTIME +1
0233	REF	1			26,7751	4 7771 0	CS	501AVEX
0234	REF	29	LAST	623	26,7752	0 5720 1	TC	POSTJUMP
02345	REF	1			26,7753	61613 1	CADR	CALCRVG2
02346					26,7754	77576 0	BADUPTIM	EXIT 0

IF PIPTIME IS GREATER THAN OR EQUAL TO UPTIME, AND UPTIME IS NOT TOO OLD, AND UPDATFLG IS SET, DO THE UPDATE. UPTIME IS NORMALLY SET TO POSMAX.

TRANSFORM DATA IN STBUFF TO SM COORDS.

THIS ASSUMES THAT UPDATE SCALED 2(7)M/CS

THIS ASSUMES THAT UPDATE SCALED 2(26)M

CALCULATE THE ASSOCIATED GRAVITY VECTOR FOR THE NEXT TIME STEP.

UPDATE RESTART POINT BEFORE SETTING UPTIME TO SHOW THAT THE DATA HAS BEEN INCORPORATED. ALSO, INDICATE THIS TO THE GROUND BY RESETTING UPDATFLG.

SET UP FOR AVERAGE G TO RETURN TO USUAL POINT IN SERVICER

COME HERE IF UPTIME REPRESENTS PAST TIME

L AVERAGE G INTEGRATOR

USER'S OWN PAGE NO. 7

02347	REF	26	LAST	647	26,7755	0	3007	0	TC	ALARM	
02348					26,7756		01411	1	OCT	01411	
02349	REF	29	LAST	751	26,7757	3	4476	0	CAF	POSMAX	
0235	REF	6	LAST	751	26,7760	5	1671	0	TS	UPTIME	
02351	REF	7	LAST	752	26,7761	5	1672	0	TS	UPTIME +1	
02352	REF	19	LAST	751	26,7762	0	3430	0	TC	FLAG1DWN	RESET UPDAT FLAG
02353					26,7763		20000	0	OCT	20000	
02354	REF	104	LAST	744	26,7764	0	4000	0	TC	INTPRET	
02355					26,7765		76776	0	ITC	0	
02356	REF	3	LAST	751	26,7766		25302	1		REGSTEP	
02357					26,7767	00000	1	2.5SEC26	2DEC	250	
C02357					26,7770	00372	1				
02358	REF	1			26,7771	65303	1	501AVEX	CADR	AVGRET	

710

61

=49

L AVERAGE G INTEGRATOR

USER'S OWN PAGE NO. 8

P0500 SIM FLIGHT SPECIAL

0501				31,7520		BANK	31
0502	REF 105 LAST 752	31,7520	0 4000 0	MALSJOB	TC	INTPRET	
0503		31,7521	51776 0		VXM	0	
0504	REF 25 LAST 751	31,7522	01101 0			STBUFF	
0505	REF 16 LAST 751	31,7523	01052 1			REFSMMAT	
0506	REF 26 LAST 753	31,7524	33101 1		STORE	STBUFF	
0507		31,7525	51775 0		VXM	1	
0508		31,7526	44776 1		VSLT		
05085	REF 27 LAST 753	31,7527	01107 0			STBUFF +6	
0509	REF 17 LAST 753	31,7530	01052 1			REFSMMAT	
05095		31,7531	00002 0			1	
0510	REF 28 LAST 753	31,7532	33107 1		STORE	STBUFF +6	
0511		31,7533	77576 0		EXIT	0	
0512	REF 109 LAST 731	31,7534	0 2124 1		TC	ENDOFJOB	

don't count

L VERIFICATION ASSISTANCE PROGRAMS

USER'S OWN PAGE NO. 1

R0001 WAITLIST EXERCISE PROGRAM. TIMES ARE GIVEN IN THE FORM NN + NN/32 + YY, WHERE THE NS REFER TO TIME
 R0003 SINCE THE BEGINNING OF THE TEST, AND YS ADDITIONAL MCT.

0004				13,7205		BANK	13	
0005	REF	13 LAST 337		13,7205	3 0006 1	WLTEST	XCH	IN2
0006	REF	14 LAST 754		13,7206	1 0006 0		CCS	IN2
0007				13,7207	0 7211 1		TC	+2
0008				13,7210	0 7206 1		TC	-2
0009	REF	15 LAST 754		13,7211	1 0006 0		CCS	IN2
0010				13,7212	0 7211 1		TC	-1
0011	REF	3 LAST 175		13,7213	5 0042 1		TS	OUTCR1

GET IN PHASE WITH T3 INCREMENTS.

TO INITIALIZE.

R0012 THE FIRST TASK IS ENTERED INTO SLOT 1 WITH A T3 INCREMENT BETWEEN THE TWO T3 REFERENCES. CALL AT
 R0014 10 +00/32 -25. SPECIFY WAIT TO 30/32.

0015	REF	1		13,7214	0 7310 1		TC	OUTCR1WT
0016				13,7215	00035 1		DEC	29
0017	REF	2 LAST 754		13,7216	0 7310 1		TC	OUTCR1WT
0018				13,7217	00052 0		DEC	42

GO WAIT FOR THIS AND SPECIFY RESET TO 20 +8/32.

R0019 AT 30/32 +16, WAIT 12 MCT BEFORE ENTERING TASK 1.

0020	REF	226 LAST 744		13,7220	3 5501 0		CAF	ZERO	TUNING CONSTANT.
0021	REF	501 LAST 729		13,7221	1 0000 0		CCS	A	
0022				13,7222	0 7221 1		TC	-1	
0023	REF	225 LAST 747		13,7223	3 4516 1		CAF	ONE	TASK ENTRY WITH T3 INC BETWEEN TWO T3
0024	REF	120 LAST 731		13,7224	0 2173 0		TC	WAITLIST	REFERENCES.
0025	REF	3 LAST 338		13,7225	42240 1		CADR	NOPLWAIT +2	TASK IN HIGH SWITCHED BANK.
0026	REF	3 LAST 754		13,7226	0 7310 1		TC	OUTCR1WT	WAIT FOR 20 +8/32. CALL FOR RESET TO
0027				13,7227	00027 1		DEC	23	20 +31/32.
0028	REF	226 LAST 754		13,7230	3 4516 1		CAF	ONE	AT 20 +8/32 + 16, ENTER TASK 2 DUE AT
0029	REF	121 LAST 754		13,7231	0 2173 0		TC	WAITLIST	30.
0030	REF	1		13,7232	27332 0		CADR	QTSK2	

L VERIFICATION ASSISTANCE PROGRAMS

USER'S OWN PAGE NO. 2

P0031 WAIT FOR 20 +31/32 +16 AND AT THAT TIME WAIT FOR T3 TO OVERFLOW BEFORE ENTERING TASK 3. REQUIRES RESET
 R0033 TO 30 +10/32.

0034	REF	4 LAST 754	13,7233	0 7310 1	TC	OUTCR1WT	
0035			13,7234	00013 0	DEC	11	
0036	REF	9 LAST 613	13,7235	1 0037 1	CCS	TIME3	
0037			13,7236	0 7235 1	TC	-1	
0038	REF	227 LAST 754	13,7237	3 4516 1	CAF	ONE	ENTER TASK 3 AFTER T3 OVF.
0039	REF	122 LAST 754	13,7240	0 2173 0	TC	WAITLIST	
0040	REF	1	13,7241	27333 1	CADR	QTSK3	
0041	REF	5 LAST 755	13,7242	0 7310 1	TC	OUTCR1WT	TASK 3 IS DUE AT 40. WAIT FOR 30 +10/32
0042			13,7243	00065 1	DEC	53	CALLING FOR RESET TO 40 +31/32.

R0043 AT 30 +10/32 +16, ENTER TASKS 4 AND 5 DUE SAME RUPT AT 50. THEY WILL BE INHIBITED FOR 6 MS SO THAT T3
 R0045 WILL TICK WHILE IT IS BEING RESET IN THE DISPATCH OF 5.

0046	REF	95 LAST 731	13,7244	3 5503 1	CAF	TWO	ENTERED INTO SLOTS 2 AND 3.
0047	REF	123 LAST 755	13,7245	0 2173 0	TC	WAITLIST	
0048	REF	1	13,7246	27334 0	CADR	QTSK4	
0049	REF	96 LAST 755	13,7247	3 5503 1	CAF	TWO	
0050	REF	124 LAST 755	13,7250	0 2173 0	TC	WAITLIST	
0051	REF	1	13,7251	03225 1	CADR	TCTSKOVR	TASK IN FIXED-FIXED.
0052	REF	6 LAST 755	13,7252	0 7310 1	TC	OUTCR1WT	WAIT FOR 40 +31/32 +16, CALLING FOR
0053			13,7253	00023 0	DEC	19	RESET TO 50 +18/32.
0054	REF	7 LAST 755	13,7254	0 7311 0	TC	OUTCR1WT +1	AT 40 +31/32 +16, INHIBIT UNTIL
0055			13,7255	00030 1	DEC	24	50 +18/32 +16 AND RESET TO 60 +10/32.
0056	REF	8 LAST 755	13,7256	0 7310 1	TC	OUTCR1WT	AT 50 +18/32 +16, WAIT UNTIL 60 10/32,
0057			13,7257	00025 0	DEC	21	RESETTING TO 60 +31/32.

L VERIFICATION ASSISTANCE PROGRAMS

USER'S OWN PAGE NO. 3

P0058 AT 60 +10/32 +16, ENTER TASKS 6 AND 7 DUE AT 70 AND 8 DUE AT 80. T3 WILL INCREMENT DURING TASK 7
 R0060 DISPATCH, MAKING TASK 8 DUE THAT INTERRUPT.

0061	REF 228 LAST 755	13,7260	3 4516 1	CAF	ONE	
0062	REF 125 LAST 755	13,7261	0 2173 0	TC	WAITLIST	ENTER TWO TASKS DUE SAME T3 RUPT AND
0063	REF 1	13,7262	27340 0	CADR	QTSK6	ANOTHER DUE THE FOLLOWING RUPT.
0064	REF 229 LAST 756	13,7263	3 4516 1	CAF	ONE	
0065	REF 126 LAST 756	13,7264	0 2173 0	TC	WAITLIST	
0066	REF 1	13,7265	27342 1	CADR	QTSK7	
0067	REF 97 LAST 755	13,7266	3 5503 1	CAF	TWO	A T3 INC WILL OCCUR WHILE TASK 7 IS
0068	REF 127 LAST 756	13,7267	0 2173 0	TC	WAITLIST	SETTING T3 FOR THIS TASK AND CAUSE IT TO
0069	REF 1	13,7270	27343 0	CADR	QTSK8	BE THE THIRD TASK DUE THAT RUPT.
0070	REF 9 LAST 755	13,7271	0 7310 1	TC	OUTCR1WT	WAIT UNTIL 60 +31/32 +16, INHINTING
0071		13,7272	00023 0	DEC	19	70 +18/32 +16.
0072	REF 10 LAST 756	13,7273	0 7311 0	TC	OUTCR1WT +1	
0073		13,7274	00001 0	DEC	1	
0074	REF 15 LAST 723	13,7275	3 4477 1	CAF	FIVE	SYSTEMMATICALLY ENTER TASKS IN ALL 6
0075	REF 529 LAST 748	13,7276	5 0115 1	TS	MPAC	SLOTS.
0076		13,7277	2 0016 1	QTSKLOOP	RELINT	
0077		13,7300	2 0017 0		INHINT	
0078	REF 530 LAST 756	13,7301	4 0115 0	CS	MPAC	
0079	REF 16 LAST 609	13,7302	6 5362 0	AD	SEVEN	
0080	REF 128 LAST 756	13,7303	0 2173 0	TC	WAITLIST	
0081	REF 1	13,7304	27344 1	CADR	QTSK10	
0082	REF 531 LAST 756	13,7305	1 0115 0	CCS	MPAC	
0083	REF 1	13,7306	0 7276 0	TC	QTSKLOOP -1	
0084		13,7307	0 7307 1	QENDTEST	TC	

L VERIFICATION ASSISTANCE PROGRAMS

USER'S OWN PAGE NO. 4

P0085 THE FOLLOWING SUBROUTINE USES OUTCR1 AS A FINE TIMER DURING THE WAITLIST TEST.

0087			13,7310	2 0016 1	OUTCR1WT RELINT		
0088	REF 328 LAST 691		13,7311	3 0001 0	XCH	Q	
0089	REF 532 LAST 756		13,7312	5 0115 1	TS	MPAC	
0090	REF 502 LAST 754		13,7313	2 0000 0	INDEX	A	
0091			13,7314	4 0000 0	CS	0	NUMBER OF THIRTY-SECONDS OF 10MS TO WAIT
0092	REF 22 LAST 691		13,7315	6 4522 0	AD	HALF	
0093	REF 23 LAST 757		13,7316	6 4522 0	AD	HALF	
0094	REF 533 LAST 757		13,7317	5 0116 1	TS	MPAC +1	NEW OUTCR SETTING.
0095	REF 4 LAST 754		13,7320	1 0042 0	CCS	OUTCR1	
0096			13,7321	0 7320 1	TC	-1	
0097	REF 534 LAST 757		13,7322	3 0116 1	OUTCR1W2 XCH	MPAC +1	
0098	REF 5 LAST 757		13,7323	5 0042 1	TS	OUTCR1	
0099	REF 1		13,7324	3 7331 1	CAF	1WTCODE	
0100	REF 11 LAST 187		13,7325	5 0012 1	TS	OUT2	
0101			13,7326	2 0017 0	INHINT		
0102	REF 535 LAST 757		13,7327	2 0115 0	INDEX	MPAC	
0103			13,7330	0 0001 0	TC	1	
0104			13,7331	26000 0	1WTCODE OCT	26000	

L VERIFICATION ASSISTANCE PROGRAMS

USER'S OWN PAGE NO. 5

P0105 TASKS FOR WAITLIST TESTER.

0106	REF 98 LAST 731	13,7332	0 2256 1	QTSK2	TC	TASKOVER	
0107	REF 99 LAST 758	13,7333	0 2256 1	QTSK3	TC	TASKOVER	
0108	REF 1	13,7334	3 7345 1	QTSK4	CAF	QTSK4DEL	WAIT SO THAT T3 WILL TICK DURING DISPTCH
0109	REF 503 LAST 757	13,7335	1 0000 0		CCS	A	
0110		13,7336	0 7335 0		TC	-1	
0111	REF 100 LAST 758	13,7337	0 2256 1		TC	TASKOVER	
0112	REF 1	13,7340	3 7346 1	QTSK6	CAF	QTSK6DEL	
0113	REF 2 LAST 755	13,7341	0 7335 0		TC	QTSK4 +1	
0114	REF 101 LAST 758	13,7342	0 2256 1	QTSK7	TC	TASKOVER	
0115	REF 102 LAST 758	13,7343	0 2256 1	QTSK8	TC	TASKOVER	
0116	REF 103 LAST 758	13,7344	0 2256 1	QTSK10	TC	TASKOVER	
0117		13,7345	00115 1	QTSK4DEL	DEC	77	TUNING CONSTANTS.
0118		13,7346	00116 1	QTSK6DEL	DEC	78	

L 000 SUM-CHECK END OF RECORD MARKS
 R0001 EACH VALID BANK MUST HAVE AN EOR CONSISTING OF TWO TC SELF WORDS TO
 R0002 SIGNIFY THE END OF GOOD PARITY DATA.

USER'S OWN PAGE NO. 1

0004		3574		BANK 1
0005		3574	0 3574 1	TC
0006		3575	0 3575 0	TC
0008		5765		BANK 2
0009		5765	0 5765 0	TC
0010		5766	0 5766 0	TC
0012		03,7465		BANK 3
0013		03,7465	0 7465 1	TC
0014		03,7466	0 7466 1	TC
0016		04,7516		BANK 4
0017		04,7516	0 7516 1	TC
0018		04,7517	0 7517 0	TC
0020		05,7605		BANK 5
0021		05,7605	0 7605 0	TC
0022		05,7606	0 7606 0	TC
0024		06,7632		BANK 6
0025		06,7632	0 7632 1	TC
0026		06,7633	0 7633 0	TC
0028		07,7530		BANK 7
0029		07,7530	0 7530 0	TC
0030		07,7531	0 7531 1	TC
0032		10,7741		BANK 10
0033		10,7741	0 7741 1	TC
0034		10,7742	0 7742 1	TC
0036		11,7734		BANK 11
0037		11,7734	0 7734 0	TC
0038		11,7735	0 7735 1	TC
0040		12,7760		BANK 12
0041		12,7760	0 7760 1	TC

L 000 SUM-CHECK END OF RECORD MARKS

USER'S OWN PAGE NO. 2

0042	12,7761	0 7761 0	TC	
0044		13,7347	BANK	13
0045	13,7347	0 7347 0	TC	
0046	13,7350	0 7350 0	TC	
0048		14,7573	BANK	14
0049	14,7573	0 7573 1	TC	
0050	14,7574	0 7574 0	TC	
0052		21,7565	BANK	21
0053	21,7565	0 7565 0	TC	
0054	21,7566	0 7566 0	TC	
0056		22,7203	BANK	22
0057	22,7203	0 7203 1	TC	
0058	22,7204	0 7204 0	TC	
0060		23,7476	BANK	23
0061	23,7476	0 7476 0	TC	
0062	23,7477	0 7477 1	TC	
0064		24,6512	BANK	24
0065	24,6512	0 6512 1	TC	
0066	24,6513	0 6513 0	TC	
0068		25,7543	BANK	25
0069	25,7543	0 7543 1	TC	
0070	25,7544	0 7544 0	TC	
0072		26,7772	BANK	26
0073	26,7772	0 7772 1	TC	
0074	26,7773	0 7773 0	TC	
0076		27,7354	BANK	27
0077	27,7354	0 7354 1	TC	
0078	27,7355	0 7355 0	TC	
0080		30,7755	BANK	30
0081	30,7755	0 7755 1	TC	

L 000 SUM-CHECK END OF RECORD MARKS

USER'S OWN PAGE NO. 3

0082	30,7756	0 7756 1	TC	
0084		31,7535	BANK	31
0085	31,7535	0 7535 0	TC	
0086	31,7536	0 7536 0	TC	
0088		32,7743	BANK	32
0089	32,7743	0 7743 0	TC	
0090	32,7744	0 7744 1	TC	
0092		33,7446	BANK	33
0093	33,7446	0 7446 0	TC	
0094	33,7447	0 7447 1	TC	
0096		34,7770	BANK	34
0097	34,7770	0 7770 0	TC	
0098	34,7771	0 7771 1	TC	

END OF REVISION 0 OF PROGRAM SOLRUM55 BY NASA 1021108-021

LAST ASSEMBLED ON NOV 26, 1966

SYMBOL TABLE LISTING, INCLUDING PAGE NUMBER OF DEFINITION, AND NUMBER OF REFERENCES WITH FIRST AND LAST PAGE NUMBERS

SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F
0.01SEC		4516 601	2	598 599	=	1/PIPA	14,7017 214	4	215 699	2ROUND	06,7224 519	4	517 518	
0.25S33	33,7220 616	1	615		1/PIPADT	0755 21	7	21 744		2/3	23,7230 325	1	312	=
0.25SEC	32,6676 570	3	567 574		1/RLLRTE	1700 33	1	557		2SCOM2	10,7423 188	1	188	
0.5SEC	33,6557 602	1	602		1/TAN33	26,7550 678	1	660		2SCOMDIF	10,7410 188	3	162 397	
0.75SEC	32,7146 575	1	573		1/WIE	25,7517 655	3	654 655		2SEC21	21,7014 351	1	338	
0.995	33,6162 592	1	591		1SEC32	32,6677 570	1	560		2SEC24	24,6453 622	2	621 622	
1000DEC	3572 627	-	-	-	1SEC	32,7147 575	-	-	-	2SEC33	33,6712 605	2	605 615	
100DEC	3564 626	-	-	-	1ST02S	30,6324 378	7	332 475		2SEC	32,7567 586	4	553 580	
105SEC	24,6353 611	1	611		1WTCODE	13,7331 757	1	757		2SECS	14,6102 194	1	194	
10DEGS	30,6414 380	1	380		2000DEC	3573 627	-	-	-	2VSCALE	0014 296	1	316	=
10.5SEC	32,6507 566	1	572		200DEC	3565 626	2	553 554		300DEC	3566 627	-	-	-
10SEC24	24,6352 611	1	609		20BIAS	06,6742 509	2	508		30DEC	3556 626	-	-	=
10SEC	24,6175 577	1	576		20DEGS	2675 160	1	160		30DEG	26,7556 678	4	660 680	
10SECS75	05,7142 260	1	260		20MANU	26,6777 670	1	670		30MANU	26,7105 671	1	670	
10SECS	14,6101 194	1	193		20MSRUPT	10,7126 180	1	173		30SEC	12,7744 425	1	394	
11DEC	3533 626	1	426	=	20SECS	14,6100 194	1	194		31.5DEG	26,7554 678	2	666	
11DSPIN	06,7426 527	7	491 531		21/22REG	0106 15	2	486 492	=	31.8DEG	32,7654 588	1	587	
11.5SEC	32,7151 575	1	567		22MANU	26,6767 669	1	670		31MANU	26,7060 671	1	670	
11MANU	26,6665 668	1	668		23MANU	26,6773 670	1	670		320MS	14,6103 194	7	193 213	
12BITSOK	04,6033 99	1	101		23MIN	32,7570 586	1	583		32K	2165 291	1	291	=
12M56S	30,6241 331	1	330		25NM	30,7123 737	1	713		333MANU	26,7065 671	1	671	
12MANU	26,6705 668	1	668		289.5SEC	24,6141 576	2	576		33MANU	26,7077 671	1	671	
15/16	23,7432 325	1	312		2BIG	30,6546 383	1	383		35DEG	32,7655 588	2	565 588	
15/16TH	33,7353 619	1	618		2BLANK	06,6621 495	5	490 529		35MANU	26,7130 672	1	671	
15SEC	32,6705 570	-	-	-	2C1HS	30,7217 738	2	708 709		35SCNDS	10,7501 189	1	185	
180CASE	26,7350 675	1	658		2C1HSLAD	30,7221 738	1	721		35SECS	14,6077 194	1	193	
180DEG	26,7572 680	-	-	-	2DEL	0004 296	2	298 300	=	360DEG	26,7572 680	3	670 673	=
180/ZERO	26,6101 658	1	657		2DEL+E	0004 296	5	297 306	=	366MANU	26,7175 673	1	672	
18SEC24	24,6476 623	1	622		2HS	30,7205 738	2	720 725		368MANU	26,7155 672	1	673	
1BITDP	30,7060 736	2	704		2HSGMXSQ	30,7207 738	1	725		36MANU	26,7150 672	1	672	
1CHECK	04,6670 124	1	124		2.1SPOT	13,6004 125	1	134		37DEC	30,6302 376	1	376	
1.25S14	14,7572 578	1	577		2.2SPOT	13,6010 125	-	-	-	37MANU	26,7167 672	1	672	
1.523	33,6160 592	-	-	-	2.3SPOT	13,6014 125	-	-	-	38MANU	26,7117 672	2	672 673	
1.5DEG	26,7552 678	3	666 676		2.4SPOT	13,6020 125	-	-	-	3CHECK	21,6726 349	1	349	
1.7SEC	32,6505 566	1	563		2.5SEC26	26,7767 752	1	751		3DEG	26,7560 678	1	661	
1/12TH	30,7046 736	1	715		2.5SEC32	32,7260 580	3	580		3.12SPOT	13,6104 126	-	-	-
1/20PTN	11,7102 278	1	277		2.5SEC	32,6700 570	1	565		3.15SPOT	13,6120 127	-	-	-
1/3RD	30,7044 736	2	715		2.5SPOT	13,6024 125	-	-	-	3.16SPOT	13,6124 127	-	-	-
1/8TH	30,7161 737	2	711 718		2J3RE/J2	23,7440 325	2	313 314		3.17SPOT	13,6130 127	-	-	-
1/GMAX	30,7203 738	1	725		2MIN	32,7572 586	1	583		3.1SPOT	13,6030 125	1	134	
1/GYRO	14,7237 221	2	217 223		2OPTIONS	1761 34	4	275 277	=	3.23SPOT	13,6160 128	-	-	-
1/MUE	31,6306 688	5	684 696		2RNDEND	06,7234 519	-	-	-	3.24SPOT	13,6164 128	-	-	-

KEY: SYMBOLS DEFINED BY EQUALS ARE FLAGGED =. OTHERS ARE NORMALLY DEFINED EXCEPT THOSE FLAGGED:

U UNDEFINED E FAILED LEFTOVER ERASE M MULTIPLY DEFINED T WRONG MEMORY TYPE MM MULTIPLE ERRORS
N NEARLY DEFINED BY = J FAILED LEFTOVER WORD O OVERSIZE- OR ILL-DEFINED C CONFLICT IN MEMORY X MISC. TROUBLE

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SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F
3.2SPOT	13,6034 125	- - -	501LSTB2	10,6006 157	1 157	74K	14,6676 210	1 208
3.5SEC33	33,7221 616	2 615	501SPS1	25,6454 640	2 564 622	75FN1	05,7066 259	1 258
3.5SEC	32,6702 570	1 574	501SPS2	25,6461 640	1 607	75FN2	05,7075 259	1 258
3.8SEC	32,6510 566	1 564	501JPCHK	26,7711 751	1 581	75FN3	05,7104 260	2 258 260
3OR4TEST	32,6620 568	- - -	50DEC	3562 626	1 456	75FN4	05,7052 259	1 258
3/4	23,7434 325	2 312 324	50MANU	26,7307 674	1 674	75FN5	05,7124 260	1 258
3/8	23,6301 303	1 312	5BLANK1	06,6576 495	- - -	75HI12	05,7141 260	1 258
3SEC	32,6701 570	1 569	5BLANK	06,6554 494	3 494 532	75MASK	05,7140 260	3 259 260
3ZEROS	30,7056 736	4 384 719	5.12SPOT	13,6464 132	- - -	75RELOAD	05,7020 258	8 258
400DEC	3567 627	- - -	5.18SPOT	13,6514 133	- - -	76CONTIN	13,7152 263	1 263
40DEC	3561 626	- - -	5.19SPOT	13,6520 133	- - -	76JUMPTO	05,6041 236	1 236
40MANU	26,7203 673	7 671 677	5.1SPOT	13,6410 131	1 134	76UPDATE	13,6753 261	2 236 261
40MSRUPT	2651 159	1 159	5.20SPOT	13,6524 133	- - -	77CONTIN	13,7071 262	- - -
41MANU	26,7212 673	1 673	5.21SPOT	13,6530 133	- - -	77UPDATE	13,6761 261	1 236
42K	4121 40	1 40	5.22SPOT	13,6534 133	- - -	7-8WAIT	11,6343 270	1 270
42MANU	26,7224 673	2 673	5.23SPOT	13,6540 133	- - -	7/12	23,7210 320	1 312
43MANU	26,7221 673	1 673	5.2SPOT	13,6414 131	- - -	7SEC33	33,7223 616	- - -
45SECS	14,6076 194	1 195	5.7SPOT	13,6440 132	- - -	7SEC	32,7150 575	2 572 574
4.14SPOT	13,6270 129	- - -	5/128	23,7214 320	1 313	89.5SEC	32,6706 570	1 570
4.1SPOT	13,6204 128	1 134	5SEC24	24,6354 612	1 611	89TEST	06,6063 487	2 486
4.21SPOT	13,6324 130	- - -	5SEC32	32,6703 570	1 569	8.3SEC	32,6504 566	1 564
4.26SPOT	13,6350 130	- - -	5SEC33	33,7222 616	- - -	8TO2	5041 55	5 58 92
4.27SPOT	13,6354 130	- - -	5SEC	33,6556 602	3 614 619	90DEG	26,7562 679	3 660 661
4.28SPOT	13,6360 131	- - -	600DEC	3571 627	1 627	90DEGAZ	21,7000 351	2 339 354
4.29SPOT	13,6364 131	- - -	60DEC	3563 626	- - -	90SEC24	24,6454 622	1 621
4.2SPOT	13,6210 128	- - -	60K	4170 41	1 151	90SEC32	32,7575 586	1 584
4.30SPOT	13,6370 131	- - -	60MSRUPT	10,7047 178	1 161	90SECS	14,6075 194	1 196
4.31SPOT	13,6374 131	- - -	60SCNDS	10,7502 189	1 186	93.8SEC	32,6506 566	1 571
4.32SPOT	13,6400 131	- - -	60SEC	12,7743 425	1 394	9/16	23,7212 320	1 312
4.33SPOT	13,6404 131	- - -	63DEC	34,6235 429	3 426 428	+OCASE	06,7021 511	1 510
4.3SPOT	13,6214 128	- - -	69DEC	34,6236 429	1 426	+ORET	06,7014 510	1 511
4.4SPOT	13,6220 128	- - -	6.1SPOT	13,6554 134	1 134	+DECSGN	06,6175 489	1 488
4RSCALE	0100 296	1 314	6K	4373 46	8 44 290	+ON	06,6322 491	3 491 525
4SEC	32,7261 580	- - -	6K+3	3322 550	1 550	A0=0	03,7353 95	1 94
4SECONDS	30,6243 331	1 330	6K-1	4610 50	1 50	A0	1601 31	8 709 721
500DEC	3570 627	- - -	6SEC	32,6704 570	2 573	A0CALC	31,7036 708	1 708
501ABORT	25,6530 641	1 565	70K	2667 159	2 119 290	A1	1100 732	3 708 718
501AVEX	26,7771 752	1 751	71CONTIN	13,7145 263	- - -	A	0000 12	503 37 758
501LSTA1	10,6067 158	2 155	71JUMPTO	05,6043 236	1 235	ABCLOAD	07,6564 512	1 499
501LSTA2	10,6001 157	1 155	71UPDATE	13,6757 261	1 236			
501LSTB1	10,6026 157	1 158	72DEC	12,7741 425	1 392			

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SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F
ABLOAD	07,6620 512	1 499	AGAIN4	21,7236 356	1 356	AST	03,6062 71	1 47
ABORT32	32,7257 580	2 579 580	AGAIN	32,7304 581	1 581	ATANO/O	30,6552 384	1 383
ABORT33	33,7406 620	- - -	AHOOKDV	1435 29	3 711 717 =	ATAN=90	30,6556 384	1 383
ABORT	3044 295	11 82 552	ALARM	3007 293	26 36 752	ATANDUN	30,6531 383	4 383 384
ABORTCAL	06,6057 487	1 486	ALFALIM	31,6321 689	1 685	ATDT	1714 33	2 652
ABORTEST	32,6400 564	1 563	ALGNINIT	34,6572 436	1 456	ATSBITS	5777 48	1 55 =
ABORTLOC	32,6461 565	2 565 572	ALGNTST	12,6000 392	1 257	ATTICABS	05,6306 244	1 244
ABORTRPT	32,6477 565	2 129 236	ALINTIME	05,6502 252	1 235	ATTICK2	05,6274 244	2 244
ABORTSIG	0002 18	1 582 =	ALLABORT	33,6254 594	1 613	ATTICNOFF	32,6527 567	11 129 599
ABRTFLAG	0056 19	- - - =	ALLDC/OC	07,6720 514	2 512	ATTCONON	32,7135 575	2 126 575
ABRTJPTO	05,6045 236	1 235	ALLDONE	13,7114 262	3 263	ATTIJOB1	33,6413 598	5 125 622
ABRTWAIT	32,6374 563	2 129 563	ALLSHADE	26,6672 668	2 665 667	ATTIJOB2	33,6423 598	1 603
ABVAL1	03,6261 75	1 47	ALM/END	05,6075 236	9 235 257	ATTIJOB	33,6404 598	2 125 587
ABVAL	03,6263 75	2 75 92	ALOAD	07,6645 513	1 499	AVEGON	30,6175 330	1 329
ACCELTST	12,6606 402	1 257	ALP	1627 32	7 709 717 =	AVETOMD1	30,6000 326	1 606
ACCEPTUP	04,7455 478	1 478	ALPHAM	1254 24	15 298 315 =	AVETOMD2	30,6007 326	1 610
ACCEPTWC	26,6037 658	2 676	ALPHAV	1152 23	19 308 324 =	AVETOMID	30,6014 326	1 326
ACCEPTWD	07,6030 497	1 497	ALTPULSS	22,6073 367	2 367	AVGON	24,6357 620	2 130 611
ACCOMP2	23,6525 309	- - -	AMEMORY	1100 23	139 23 369	AVGRET	32,7303 581	1 752
ACCOMP	23,6515 309	1 308	ANGLEX	1673 33	1 604	AVGRETRN	1313 26	2 747 748 =
ACCUR0T	22,6565 466	4 354 373	ANGLEY	1674 33	1 604	AXC	03,6067 71	1 47
ACOSST	03,6643 82	2 82 84	ANGLEZ	1675 33	1 604	AXISGEN1	22,6764 471	1 471
ACTIVFLG	0025 18	- - - =	ANORMAL	1440 28	2 644 646 =	AXISGEN2	22,7013 472	1 472
AD2	5242 60	3 59 92	ANDVFLOW	25,7065 646	1 644	AXISGEN3	22,7040 472	1 472
ADDINC	22,6044 366	2 366	ANPSEUDO	25,7160 647	1 646	AXISGEN	22,6760 471	4 360 446
ADDRESS	4215 42	2 39 41	ARCCOS1	03,6757 85	1 47	AXISROT1	22,6627 467	1 466
ADDRWD	0062 14	91 40 535	ARCCOS	03,6627 82	1 85	AXISROT	22,6555 466	6 464 465
ADDTOSUB	5055 55	3 53 59	ARCSIN1	03,6755 85	1 47	AXT	03,6072 71	1 47
ADENDEXT	31,7514 716	1 714	ARCSIN	03,6624 82	1 85	AZ	1270 24	- - - =
ADIAX	0747 21	2 216 542	ARCTAN	30,6503 383	1 666	AZIMUTH	1316 29	14 332 446 =
ADIAV	0750 21	1 216	ARCTRIG	22,6436 463	7 461 475	A(X)	23,6350 305	1 304
ADIAZ	0751 21	1 217	ARETURN	0113 15	8 15 227	*****		
ADRLOC	0121 16	25 37 385	ARGHI	03,7405 96	3 94 96	B12-1	04,7510 479	1 478
ADRS+1	11,6712 276	1 276	ARGLO	03,7374 96	1 94	B14-B8	05,6651 254	1 254
ADRSCHK	11,6721 276	2 275 276	ARGQ1	31,6142 686	1 686	B	0073 14	7 83 84 =
ADSRAX	0752 21	2 216 542	ARGQ2	31,6154 686	1 686	BACK2	27,6605 723	1 724
ADSRAY	0753 21	1 216	ARRSTFLG	0057 19	- - - =	BACK	27,6563 723	1 723
ADSRAZ	0754 21	1 217	ARRSTMSK	32,6463 565	2 569 571	BACKFLAG	0043 18	7 662 675 =
ADSUM	11,6774 277	2 275 276	ARTHINSF	06,7127 518	1 516	BACKLIM	26,6207 660	1 662
ADVAN	3002 284	- - -	ARTOUTSF	06,6743 509	1 507	BACKTEST	26,7316 675	5 671 675
AGAIN1	21,7177 356	1 356	ARUPT	0026 12	7 35 119 =	BADLONG	13,6746 139	1 139
AGAIN2	21,7207 356	1 356	ASP	0000 732	- - - =	BADMARK	14,6547 208	- - -
AGAIN3	21,7226 356	1 356	ASQ	0030 304	4 304 =	BADUPTIM	26,7754 751	1 751

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SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F				
BANK2	11,6670	275	1	276	BIT3/4	04,7346	150	1	149	BNKCON7	11,6623	274	-	-	-			
BANKCALL	5654	290	171	144	699	BIT4	4513	48	33	48	688	BNKCON	3150	535	-	-	-	
BANKJUMP	5723	291	20	117	748	BIT5	4512	48	14	140	596	BONLY2	14,7266	222	1	223		
BANKMASK	2261	119	6	40	385	BIT6	4511	48	16	104	558	BONLY3	14,7275	222	1	222		
BANKREG	0015	12	48	35	550	BIT7	4510	48	14	166	686	BOTHSGN	06,6305	490	1	491		
BANKRUPT	0030	12	6	118	478	BIT8	4507	48	11	39	614	BOVF	5623	69	1	46		
BANKSET	0061	14	17	37	385	BIT9	4506	48	7	154	588	BPL1	03,6004	70	1	46		
BANKSTOP	11,6645	275	-	-	-	BITON	10,6300	166	1	165		BRANCH	03,6021	70	7	70	90	
BANKTEM	0072	14	10	213	535	BITS4&5	04,7003	141	1	141		BRANCHQ	0111	15	7	15	70	
BASE	0104	15	2	65	66	BITS5&6	21,7017	351	1	337		BRNCHCON	06,6620	495	1	495		
BASICALL	2122	105	1	105		BITS5&7	04,7004	141	1	143		BROKYPRG	11,7660	289	1	289		
BBB	34,6010	426	1	426		BL361	27,7044	728	1	726		BRUPT	0025	12	-	-	-	=
BDDV	5141	58	1	46		BLANKCON	06,6637	496	1	495		BUBBLE	1571	27	2	396		=
BECONSTD	27,6404	720	1	710		BLANKRET	0112	15	2	495	496	BUF	0077	15	118	15	505	
BEGIN1	26,6431	664	1	664		BLIVOT3	10,6525	171	1	171		BUGBITS2	5610	68	1	67		
BEGIN2	26,6436	664	1	664		BLOAD	07,6655	513	1	499		BUGBITS	5777	48	4	56	65	=
BEGIN501	33,7411	697	1	141		BLOGS	12,6262	396	1	396		BUGMPAC	4231	42	3	62	81	
BEGINARC	26,6350	663	1	658		BMEMORY	1314	23	147	27	31	BUMP	06,7503	531	2	499	531	
BEGINCOM	14,6125	195	1	195		BMN1	03,6000	70	1	46		BUMPJOB	14,6321	201	1	201		
BEGINFLG	0050	19	7	663	669	BNKCHK	11,7005	277	1	276		BURNINIT	33,6255	595	2	587	607	
BEGINNER	33,7407	697	-	-	-	BNKCON10	11,6624	274	-	-	-	BURNMASK	3515	625	1	625		
BEGINSW	33,7433	697	-	-	-	BNKCON11	11,6625	274	-	-	-	BURSTPOS	12,6365	397	2	395		
BETAM	1256	24	2	309	311	BNKCON12	11,6626	274	-	-	-	BVECTOR	1220	24	-	-	-	=
BETAV	1160	24	8	308	311	BNKCON13	11,6627	274	-	-	-	BVSU1	5214	59	1	46		
BHIZ1	03,6014	70	1	46		BNKCON14	11,6630	274	-	-	-	BZE1	03,6010	70	1	46		
BIASCOM	06,6661	508	2	508	509	BNKCON1	11,6615	274	2	275	277	B(X)	23,6367	305	1	304		
BIASCOMP	14,7157	218	1	219		BNKCON21	11,6631	274	-	-	-	*****						
BIASFLAG	0004	18	-	-	-	BNKCON22	11,6632	274	-	-	-	C12	30,7107	736	1	713		
BIASHI	03,7404	96	1	96		BNKCON23	11,6633	274	-	-	-	C18	30,7065	736	2	709	722	
BIASLO	03,7402	96	1	96		BNKCON24	11,6634	274	-	-	-	C19	30,7115	737	2	720		
BIASONLY	14,7261	222	1	114		BNKCON25	11,6635	274	-	-	-	C1/16	30,7071	736	1	712		
BINCON	3232	548	3	492	548	BNKCON26	11,6636	274	-	-	-	C20	30,7121	737	2	708	719	
BINROUND	06,7140	518	2	516	518	BNKCON27	11,6637	274	-	-	-	C33	26,7570	679	2	667		
BIT10	4505	48	18	110	614	BNKCON2	11,6616	274	1	275		CADRMODE	33,7410	697	-	-	-	
BIT10BAR	14,6546	208	1	208		BNKCON30	11,6640	274	-	-	-	CADRNEWG	14,7547	228	1	228		
BIT11	4504	48	29	38	727	BNKCON31	11,6641	274	-	-	-	CADRSTOR	0627	17	6	148	536	
BIT12	4503	48	23	110	727	BNKCON32	11,6642	274	-	-	-	CADRTAB	13,6003	125	2	137	138	
BIT13	4502	48	15	48	690	BNKCON33	11,6643	274	-	-	-	CADRTEM	0114	15	10	550	552	=
BIT14	4501	48	17	69	628	BNKCON34	11,6644	274	-	-	-	CAFREPIP	32,7232	580	4	580		
BIT15	4500	48	29	44	624	BNKCON3	11,6617	274	1	276		CALCCBDT	25,6430	639	4	640	651	
BIT1	4516	48	31	48	741	BNKCON4	11,6620	274	-	-	-	CALCCDU	25,6071	630	2	558	660	
BIT2	4515	48	18	74	748	BNKCON5	11,6621	274	-	-	-	CALCDIR	1570	27	2	395	396	=
BIT3	4514	48	17	168	727	BNKCON6	11,6622	274	-	-	-	CALCFLAG	0045	19	2	601	660	=

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SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F
CALCG	1042 22	1 744	CDJBUF	1322 27	2 561	CHANG1	2101 103	5 93 403
CALCGA1	22,6702 468	1 469	CDJCALC	34,7241 449	3 409 448	CHANG2	2113 103	2 38 105
CALCGA	22,6643 468	2 333 433	CDJCK1	12,6760 407	4 407	CHANGEDT	32,7222 580	1 579
CALCGEAR	30,7664 749	1 745	CDJCK2	12,6767 407	1 407	CHANJOB	04,6145 104	3 103 108
CALCGLUN	30,7723 749	- - -	CDJCK3	12,6770 407	1 407	CHAR	0063 14	5 486 488 =
CALCGRV	30,7642 748	7 355 751	CDJCK4	12,7003 407	2 407	CHARALRM	06,7440 528	16 486 488
CALCGRV1	30,7644 748	2 746 747	CDJCK5	12,7012 407	1 407	CHARIN	06,6006 486	1 477
CALCGTA	22,6352 461	6 360 729	CDJCK6	12,7041 408	1 408	CHDTMASK	4504 580	- - - =
CALCMANU	26,6000 657	1 601	CDJCK7	12,7043 408	1 408	CHECKG1	12,6615 403	1 404
CALCNBSC	25,6212 634	3 604 657	CDJCK	12,6757 407	- - -	CHECKG3	12,6660 403	3 403 420
CALCPTCH	26,7527 678	2 677 678	CDJCODES	10,7450 189	1 163	CHECKG5	12,6662 403	1 404
CALCRVG2	30,7613 747	1 751	CDJDI	12,7055 408	2 408	CHECKG	12,6613 403	5 394 419
CALCRVG	30,7550 747	2 581 699	CDJD	12,7066 409	2 407 408	CHECKIN3	04,7070 143	1 145
CALCSCNB	25,6166 633	2 558 660	CDJDRIVE	25,6374 638	2 592 603	CHECKLD1	12,7202 411	1 411
CALCSMNB	25,6107 631	3 596 657	CDJDRVE1	25,6412 638	1 638	CHECKLD2	12,7204 411	1 411
CALCSNAP	26,6170 660	1 659	CDJDRVE2	25,6401 638	1 596	CHECKLD	12,7162 411	4 392 411
CALCSXA1	22,7112 473	2 473	CDJFAIL2	10,6336 166	1 166	CHECKM02	05,7120 260	1 260
CALCSXA	22,7043 473	- - -	CDJFAIL3	10,6334 166	1 166	CHECKM1	12,6646 403	1 403
CALCTFF	31,6000 684	2 582 610	CDJFAIL	10,6327 166	1 166	CHECKM	12,6645 403	1 403
CALCVGB	25,6420 639	4 587 607	CDJINC	14,6361 203	2 241 381	CHECKMM	2346 122	13 124 340
CALCXSC	25,7401 652	1 595	CDJIND	0677 19	28 143 418	CHECKNEG	30,6751 390	1 390
CALL4.11	32,6010 553	- - -	CDJLOG1	30,6311 377	2 377	CHECKNV1	21,7562 365	1 365
CALLCADR	1467 28	4 117 577 =	CDJLOGIC	30,6303 377	6 363 629	CHECKNV2	21,7564 365	1 365
CARRYON	12,6745 406	1 406	CDJNBRES	25,6300 636	- - -	CHECKNV	21,7542 365	6 332 365
CARYON	12,7435 419	1 419	CDJNDX	1233 26	14 407 422 =	CHECKP1	12,6633 403	1 403
CBDT	1410 27	7 590 652 =	CDJOUT	10,6171 163	1 163	CHECKP	12,6632 403	1 403
CCCC	34,6025 426	1 426	CDJURSM	10,6220 163	2 162	CHEKEXIT	25,7060 646	4 646 647
CCHK0	11,7441 285	2 286	CDJTEMP	1314 27	18 559 629 =	CHEXIT	21,7441 361	3 358 360
CCHK1	11,7455 285	1 285	CDJTRIG	25,6000 628	2 559 561	CHGIGC	22,6172 370	1 371
CCHK2	11,7460 285	1 286	CDJX	0047 12	20 156 628 =	CHGMGC	22,6207 370	1 371
CCHK	11,7421 285	1 257	CDJXFIX	30,6720 390	2 630 744	CHGOGC	22,6224 371	1 371
CCHKA	11,7433 285	1 285	CDJXFLAG	0042 18	4 599 638 =	CHKCALC	34,7365 452	1 399
CCHKALM	11,7525 286	5 285 286	CDJXJOB	33,7274 618	2 127 618	CHKDEL VX	30,7406 743	1 743
CCHKB	11,7436 285	1 286	CDJXTASK	33,7260 618	2 126 614	CHKNVTEM	1354 30	4 365 =
CCHKC	11,7503 286	1 286	CDJY	0050 12	7 156 628 =	CHKOPT	21,7262 358	3 124 358
CCHKD	11,7506 286	1 286	CDJZ	0051 12	7 156 628 =	CHKTEMX	30,7421 743	1 743
CCHKNV	11,7532 286	1 286	CFACTOR	26,7572 680	1 639 =	CHKVL	31,7420 714	1 714
CCSCHK	11,6045 266	3 284	CFAILCON	06,6500 493	1 492	CHOOK	30,7157 737	1 711
CCSHOLE	3062 295	47 71 678	CGJOB	14,7562 577	1 577	CK4MM14	13,7062 262	1 261
CDRVE1	10,6544 172	2 172	CGTASK	14,7550 577	2 126 573	CLEANOUT	32,6366 563	1 563
CDRVE2	10,6554 172	2 172	CGY	1704 33	1 595	CLEAR1	06,6535 494	1 494
CDRVE	10,6534 172	3 170	CGZ	1710 33	1 595	CLEAR	06,6501 493	1 487
CDTTHREE	22,6055 367	2 367	CH1	30,7163 737	3 711 718	CLGNMARK	34,6374 431	1 430

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CLOAD	07,6671 513	1 499	CONTINU3	27,6317 718	1 718	D	1362 29	19 701 725 =
CLOG1/2	30,6501 382	2 382	CONTINU	11,6730 276	4 276	DACCOM	4742 53	4 53 84
CLPASHI	06,6516 494	1 494	CONTINUE	24,6414 621	2 621	DACCOM+	03,6761 85	2 80 84
CLPASS	0633 17	13 148 534	CONJMNOR	07,6775 515	1 514	DAD1	5020 55	8 54 68
CLR5	06,6542 494	1 494	CORSW	04,6044 101	- - -	DAD2	4766 54	14 46 93
CMEMORY	1561 23	46 27 33	COS1	03,6622 81	1 47	DAD	5171 58	2 382 509
CM/SMTSK	33,7342 619	4 126 618	COS27	26,7542 678	1 658	DADV1	1344 29	- - - =
CNEGLIMS	26,6277 662	1 661	COS30	26,7546 678	- - -	DANZIG	4024 38	44 56 688
CNTRCHK	11,6563 273	- - -	COS33	25,6240 634	5 596 634	DATACALL	5730 291	3 275 523
CNTRLOOP	11,6564 273	1 274	COS3	26,7540 678	2 659 665	DATADWNF	2511 154	1 152
COAROFIN	1305 26	3 393 430 =	COS60	33,7256 617	1 617	DATALD1	12,7235 412	4 399 419
COARSAGN	1213 26	2 392 393 =	COS63	26,7544 678	2 659 663	DATAPL	1242 26	57 398 455 =
COARSDON	14,6214 198	1 195 =	COSAZ	0004 332	5 339 346 =	DATAWAIT	3157 535	- - -
COASTEST	32,7355 582	- - -	COSCDU	1336 27	19 629 637 =	DATUPDAT	13,6762 261	2 261
COASTFLG	0021 18	2 582 599 =	COSG/2	1605 31	4 712 =	DATWAIT1	3167 535	2 535 547
COASTMSK	24,6115 576	- - -	COSINE	03,6535 80	1 81	DBSU	4735 53	1 46
COASTPHS	24,6114 576	2 128 572	COSLAM	0044 332	2 339 344 =	DC10	11,7573 287	1 287
CODE	0111 15	18 487 531 =	COSONE	26,7652 680	2 675	DC11	11,7576 287	1 288
COMLSTA	2576 156	1 154	COSSIX	26,7654 680	3 657 680	DC585	34,7742 458	4 448 452
COMLSTB	2612 156	1 152	COSTH	0020 476	9 461 475 =	DC9	11,7535 287	1 287
COMP2SEC	24,6511 623	1 623	COS(13)	30,7213 738	1 739	DC+	11,7613 288	1 287
COMP	03,6325 76	3 47 73	COTGAM	1276 24	- - - =	DC++	11,7632 288	1 288
COMPCHK	14,7260 221	1 219	COUNT	0104 15	20 487 531 =	DCA1	4537 49	1 42
COMPICK	07,6474 506	2 506	COUNTCHK	11,6414 271	1 274	DCDU	1344 27	8 636 637 =
COMP.OFF	10,7010 178	1 177	COUNTPL	1220 26	12 399 456 =	DCHECK	11,7534 287	1 257
COMP.ON	10,7017 178	1 177	COUNTS	11,6416 271	2 271 272	DCNOUT	11,7656 288	1 287
COMPLMNT	11,6525 273	- - -	COUNTSOF	11,6446 272	1 272	DCONSTD	27,6376 720	1 713
COMPNUMB	1117 25	7 157 263 =	CREXIT	5550 66	- - -	DCWAIT	11,7566 287	1 288
COMPON	0112 15	7 15 92	CRIT	24,6112 562	1 561	DDDD	34,6051 426	2 427 429
COMPTST	07,6430 505	8 505 513	CRITCON	06,6211 489	2 488 490	DDVO	03,6776 86	2 58 92
COMPTST1	07,6433 505	- - -	CROSS1	5511 65	1 46	DDV	5144 58	1 46
COMPUT	12,6470 399	1 399	C/D0	30,7177 738	1 720	DDVOK	03,7030 86	2 86
CONC+S1	11,6005 265	1 274	CSQ	4664 51	6 111 295	DEC11	12,7752 425	1 414
CONC+S2	4664 265	1 274 =	CSTMASK	32,7256 580	1 579	DEC1500	12,7756 425	1 419
CONCADR	12,6750 406	2 406	CURNTJOB	13,6676 138	3 135 136	DEC15	27,7201 732	1 723
CONCNTR1	4512 265	1 273 =	CURTAINS	3066 295	7 221 619	DEC180	12,7750 425	- - -
CONERAS1	11,6003 265	1 273	CUSSANG	1564 27	3 289 397 =	DECBRNCH	0615 17	17 487 516
CONERAS2	11,6004 265	2 272 280	CYCLSHFT	11,6572 274	- - -	DECDSP3	07,6551 507	2 507
CONSTD1	27,6426 720	1 721	CYL	0022 12	34 43 628 =	DECDSP	07,6476 506	1 499
CONSTD	27,6411 720	- - -	CYR	0020 12	44 38 547 =	DECEND	06,6165 488	2 488
CONT1	27,6232 717	1 722	*****			DECON	06,6216 489	1 489
CONTCADR	12,7440 419	2 419	DO	1613 31	- - - =	DECOUNT	0063 14	30 501 519 =
CONTINU2	27,6302 718	1 717	D34	4043 38	1 38	DECRET	0106 15	5 514 516 =

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DECROUND	06,7314 524	1 524	DESOPSET	0732 20	6 149 192	DODCSION	30,6140 329	1 328
DECTEM1	0064 14	- - - =	DESOPTX	0704 19	4 171 545	DOGYRO	10,7571 231	2 227 231
DECTEM2	0110 15	- - - =	DFRNT	06,7406 527	2 527	DOGYROC1	21,6352 340	1 340
DECTEM	0064 14	3 506 507 =	DHOOK	1433 29	5 711 718 =	DOGYROC2	21,6354 340	1 358
DECTOBIN	06,6130 488	1 488	DIFEQ0	23,7131 318	1 321	DOGYROC	21,6344 340	1 349
DECX	12,7757 425	1 409	DIFEQ	23,7202 323	2 316 324 =	DOGYROSP	10,7504 229	2 224 229
DEGCOM	06,6722 509	1 508	DIFEQ+0	23,7202 320	1 323	DOIMUCDU	10,6141 162	2 161
DEGCON1	06,7122 517	1 517	DIFEQ+12	23,7216 320	- - -	DOLD	1415 29	1 701 =
DEGCON2	06,7124 518	1 518	DIFEQ+24	23,7232 320	- - -	DOMANFLG	0046 19	1 603 =
DEGINSF2	06,7066 517	1 518	DIFEQCNT	1305 25	4 308 323 =	DOMANMSK	33,6526 602	1 602
DEGINSF	06,7054 517	1 516	DIFEQCOM	23,7353 323	2 320	DOMANOFF	33,6552 602	1 602
DEGOUTSF	06,6645 508	2 507 508	DIFEX	10,7433 188	2 188	DOMANU1	33,6527 602	1 602
DEGTAB1	06,6734 509	2 509	DIFF	1224 25	6 713 720 =	DOMANU	33,6525 602	2 598 602
DEGTAB2	06,6737 509	2 509	DIFFCOM	05,6713 255	1 255	DOMARKER	2536 154	2 152 153
DEL	0002 296	2 298 306 =	DIFFNEG	05,6720 255	1 255	DOMAX	10,7610 231	1 232
DEL+E	0002 296	2 297 306 =	DIFFOLD	1324 28	4 709 720 =	DOMINOR	10,7577 231	1 231
DELCDU	25,7533 656	1 578	DIFFVECT	1424 27	2 644 645 =	DOMKREJ	05,6415 249	1 235
DELE	1360 30	2 30 346 =	DIMCOUNT	22,6100 367	1 367	DONE1	26,7407 676	1 680
DELLOAD	05,6216 241	3 241 245	DISEXIT	14,6160 196	5 196 199	DONE	26,7656 680	2 673
DELR	1152 24	3 546 =	DISPCNTR	1443 28	1 143 =	DONEGMAX	10,7615 232	1 231
DELS	1362 30	4 30 347 =	DISPLACE	07,6772 515	1 515	DONTSET	26,6374 663	1 663
DELT	0577 16	6 111 112 =	DISTEM	0064 14	3 505 =	DONW	10,6371 168	2 169
DELTA	22,6130 369	1 367	DLONG	1260 24	- - - =	DOPL14	21,6741 349	1 349
DELTAQ	1276 24	1 546 =	DMOVE	4024 97	1 47 =	DOPL15	21,6736 349	- - -
DELTAT	1027 22	15 580 747 =	DMP1	5102 57	12 56 81	DOPLCHNG	21,6733 349	1 349
DELTAV	1001 22	2 22 321	DMP2	5061 56	2 46	DOPOSMAX	10,7605 231	1 231
DELV	1001 22	20 22 747 =	DMP	5157 58	10 81 519	DOPROC	06,7630 537	1 536
DELVEL	1160 24	3 546 =	DN74K	2565 155	1 154	DOSCTEST	12,6734 406	1 405
DELVX	1001 22	18 158 743 =	DN	1434 28	2 650 651 =	DOT1	5234 60	2 46 74
DELVY	1003 22	15 216 743 =	DNB	1352 27	1 636 =	DOT2	5246 60	7 60 75
DELVZ	1005 22	13 216 743 =	DNLSTADR	0672 19	6 149 609	DOTERM	06,7626 537	1 536
DENO	23,7462 325	1 315	DNPHASE1	2413 151	1 150	DOTEST	22,6261 372	5 370 371
DEN1	23,7460 325	1 315	DNPHASE2	2425 152	1 155	DOUBLK	06,6615 495	2 494 495
DEN2	23,7456 325	1 315	DNPHASE3	2435 152	1 155	DOW..	23,7376 324	1 322
DEN3	23,7454 325	1 315	DNPHASE4	2443 152	1 155	DOWNCNTL	27,6441 720	1 717
DEN4	23,7452 325	1 315	DNPHASE5	2455 152	1 155	DOWNRUPT	2377 151	1 35
DENALT	0032 325	4 315 =	DNPHASE6	2476 153	1 155	DOWNTMOK	2407 151	1 151
DENBASE	23,7446 325	1 315	DNPHASE7	2411 151	2 153 155	DP105SEC	32,7576 586	1 585
DENCEIL	23,7474 325	1 315	DNSPARE	10,6114 158	4 157	DP120SEC	24,6350 611	1 609
DENFACT	23,7450 325	1 315	DNTMGOTO	0673 19	8 149 153	DP1OUTSF	06,6752 510	1 507
DENSITY1	23,7024 315	1 315	DOALARM	11,7725 294	2 144 293	DP1/2	23,7444 325	6 297 311
DENSITY	23,7014 315	- - -	DOBR2	4602 50	4 50 76	DP1/3	23,6305 303	1 298
DESKSET	0731 20	10 149 200	DOBR	4567 50	7 69 70	DP1/3S	31,6675 696	1 696

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DP1/4	23,6303 303	6 303 685	■	DRIVECDU	33,6600 603	1 603	■	DSPMM	07,6003 497	2 122 144
DP2.5SEC	21,7015 351	1 353	■	DSEXIT	0112 15	5 486 527	= ■	DSPMMTEM	0107 15	2 536 =
DP2OUTSF	06,6757 510	1 507	■	DSKYCODE	11,7643 288	1 287	■	DSPMSK	5362 526	1 525 =
DP2PI/16	31,6312 689	1 685	■	DSKYMASK	10,6140 161	1 161	■	DSPDOCTIN	06,7434 528	1 525
DP2/3	23,7230 320	3 320 325	■	DSKYON	10,6133 161	2 161	■	DSPDOCTWD	07,7225 525	4 498 523
DP2SEC	32,7566 586	- - -	■	DSLTV	06,7420 527	1 527	■	DSPDOFF	04,7256 148	1 148
DP2(-10)	25,7262 649	1 649	■	DSMAG	0103 15	2 527	= ■	DSPDOUT	10,6564 172	2 172
DP2(-11)	25,7136 647	1 643	■	DSMSK	06,7422 527	3 527 531	■	DSPRTRN	1302 25	- - - =
DP2(-12)	25,7140 647	2 643 668	■	DSP11D	04,6737 140	- - -	■	DSPSCAN	10,6575 172	2 172 173
DP2(-13)	26,7566 679	3 664 677	■	DSP12D	04,6734 140	- - -	■	DSPSFNOR	07,6540 507	1 507
DP2(-1)	26,7572 680	2 646 654	= ■	DSP13D	04,6735 140	- - -	■	DSPTAB	0710 19	98 140 624
DP2(-2)	26,7564 679	8 640 679	■	DSP2BIT	07,7261 526	3 503 536	■	DSPTEM1	0616 17	66 17 592
DP2(-3)	30,7743 750	1 749	■	DSP2DEC	06,7315 524	1 511	■	DSPTEM2	0621 17	16 27 546
DP2(-4)	25,7132 647	2 642	■	DSPA	07,6372 505	1 499	■	DSPYLOAD	12,7107 409	3 393 410
DP2(-5)	25,7260 649	2 649	■	DSPAB	07,6365 505	1 499	■	DSQ2	5064 56	1 76
DP2(-6)	25,7134 647	1 643	■	DSPABC	07,6360 505	1 499	■	DSREL	0102 15	5 526 528 =
DP3OUTSF	06,6761 510	1 508	■	DSPADD	07,6120 498	2 498	■	DSRUPTBR	10,6223 164	2 161
DP95SEC	32,7600 586	1 585	■	DSPALARM	06,7442 528	10 503 520	■	DSRUPTM	0600 17	5 172 173 =
DPDNORM	03,7036 87	1 87	■	DSPB	07,6377 505	1 499	■	DSRUPTSW	0033 12	7 147 173 =
DPDNORT	03,7046 87	2 86 87	■	DSPBANK	07,7216 523	2 499 525	■	DSU2	4732 53	1 46
DPDOFLO	03,7132 89	4 86	■	DSPC	07,6404 505	1 499	■	DT2SEC	33,7033 608	1 607
DPDSGNT	03,7120 89	- - -	■	DSPCNT	0706 19	7 148 173	■	DT4SEC	33,7035 608	1 606
DPEXIT	5237 60	12 63 387	■	DSPCOM1	07,6375 505	2 505	■	DT	27,7200 732	1 698
DPINCOM	06,7177 519	1 519	■	DSPCOM2	07,6411 505	2 505	■	DTCOUNT	1100 369	6 366 367 =
DPINORM	06,7205 519	1 519	■	DSPCOM3	07,6417 505	1 505	■	DTEAROT	1144 25	11 353 745 =
DPINSF2	06,7207 519	1 516	■	DSPCOUNT	0614 17	50 149 536	■	DTEMP1	1432 28	7 664 668 =
DPINSF	06,7161 518	3 516 519	■	DSPDCEND	07,6542 507	2 507 510	■	DTEPOCH	1073 22	5 262 353
DP.36	26,7707 681	1 685	■	DSPDCGET	07,6506 506	1 507	■	DTH	26,7630 679	1 601
DPNT	14,7441 226	1 227	■	DSPDCPUT	07,6516 507	1 507	■	DTHETA	1452 28	4 601 603 =
DPOUT	06,6764 510	3 510	■	DSPDCWD1	06,7267 524	2 524 525	■	DT/2	1262 24	7 296 328 =
DPOUTCOM	06,6775 510	1 511	■	DSPDECWD	06,7241 523	1 507	■	DT/2MAX	30,6247 331	2 328
DPOUTNOR	06,7025 511	1 510	■	DSPDPDEC	06,7030 511	1 499	■	DT/2MIN	30,6245 331	2 328
DPSET	4747 53	8 44 58	■	DSPFREE	30,6716 389	- - -	■	DTS1	4556 49	1 46
DPTEST1	07,6272 502	3 502	■	DSPIN1	06,7366 527	3 526 528	■	DUMCODE	10,6200 163	4 163 175
DPTEST	07,6255 501	4 501 516	■	DSPIN	06,7341 526	7 488 531	■	DUMEXIT	11,7377 284	10 271 284
DPZERO	23,7226 320	5 318 557	■	DSPLAY	10,6612 173	1 172	■	DUMMARK	2541 154	2 151 152
DP(5/8)	30,7745 750	1 749	■	DSPLAYC	10,6623 173	3 172	■	DUMMYJOB	11,7415 284	1 144
DQUARTER	23,6303 303	2 310	= ■	DSPLIST	0634 17	15 148 552	■	DUMPDUMP	23,6231 301	- - -
DRAG1	23,7036 315	- - -	■	DSPLOCK0	3257 548	2 521 551	■	DUMYJOB	11,7407 284	1 284
DRAG2	23,7061 316	- - -	■	DSPLOCK1	3265 548	2 486 535	■	DUPCDU	1344 27	3 559 561 =
DRFTSUB2	14,7202 219	1 223	■	DSPLOCK	0645 18	8 492 548	= ■	DV1	11,7212 280	1 280
DRIFTFLG	0041 18	- - -	= ■	DSPLV	07,7256 526	- - -	■	DV1++	11,7214 280	1 282
DRIFTSUB	14,7171 219	3 216 217	■	DSPMM1	07,7423 536	2 497 538	■	DV1+-	11,7224 280	- - -

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U UNDEFINED	E FAILED LEFTOVER ERASE	M MULTIPLY DEFINED	T WRONG MEMORY TYPE	MM MULTIPLE ERRORS
N NEARLY DEFINED BY =	J FAILED LEFTOVER WORD	O OVERSIZE- OR ILL-DEFINED	C CONFLICT IN MEMORY	X MISC. TROUBLE

SYMBOL TABLE LISTING, INCLUDING PAGE NUMBER OF DEFINITION, AND NUMBER OF REFERENCES WITH FIRST AND LAST PAGE NUMBERS

SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F
DV1--	11,7241 280	- - -	ECC	1725 33	1 694	ENDJ3OUT	21,6750 350	1 355
DV1--	11,7233 280	- - -	EEEE	34,6114 427	1 428	ENDJOB1	04,6256 106	1 106
DV2	11,7255 281	- - -	EGSW	0010 18	2 704 722 =	ENDKSAMP	2262 184	10 180 183 =
DV2LOOP	11,7256 281	1 281	EIGHT	4513 48	6 101 609 =	ENDMANU	33,6472 599	4 599
DV3	11,7300 281	1 281	EIGHTN	3542 626	2 567 680	ENDMARKS	14,6744 212	1 211
DV3LOOP	11,7302 281	1 281	EINST1	11,6147 267	1 267	ENDMISC	4145 40	2 40
DV4++	11,7314 282	- - -	EINST2	11,6150 267	1 267	ENDMKDSP	14,6666 210	- - -
DV4+-	11,7325 282	- - -	EINST3	11,6151 267	1 267	ENDMODE	14,6300 201	1 201
DV4--	11,7336 282	- - -	EINST4	11,6152 267	1 267	ENDMONDO	07,7211 523	1 523
DV4--	11,7347 282	- - -	EINST5	11,6153 267	1 267	ENDMZERO	05,6134 239	- - -
DV++	11,6246 269	- - -	EINST6	11,6154 267	1 267	ENDNMTST	06,6146 488	2 488
DV+-	11,6254 269	- - -	EJ1	04,6341 108	7 107	ENDNORMS	26,6313 662	1 661
DVALARM	32,7712 589	1 588	EJ2	04,6351 108	2 108 109	ENDNUM	06,6157 488	- - -
DVCHK	11,6244 269	- - -	EJSCAN	04,6274 107	2 106 109	ENDNVBSY	07,7500 551	1 552
DVCNT1	1262 26	2 581 586 =	ELEVEN	3533 626	7 334 626	ENDOF	11,6466 272	1 272
DVCNTR	1447 28	8 568 589 =	ELEVEND	30,7641 748	1 748	ENDOFJOB	2124 106	109 124 753
DVCON1	11,7210 280	7 282	ELRCODE	04,7443 478	1 478	ENDOFPR	21,6361 340	1 343
DVCON3	11,7211 280	- - -	ENABEXIT	14,6227 199	1 199	ENDOPT	14,6261 201	1 212
DV--	11,6271 269	- - -	ENABLE	14,6233 199	1 199	ENDPASTE	3076 523	- - -
DV--	11,6263 269	- - -	END2DEC	06,7340 525	1 526	ENDRQWT	07,7353 530	1 533
DVL	1437 29	7 710 717 =	ENDALARM	3016 293	1 293	ENDRTOUT	07,6564 508	1 512 =
DVMIN	33,6000 589	1 588	ENDALINE	05,6542 252	2 252	ENDROUTIN	07,7102 516	1 521 =
DVMNTEST	32,7664 588	1 587	ENDALL	06,6163 488	1 489	ENDSCALE	06,7112 517	5 517 519
DVMODEON	32,6545 567	2 130 567	ENDBANKS	11,6762 276	- - -	ENDSER32	32,7741 589	9 585 589
DVMODOF1	33,7156 615	1 614	ENDCHANG	04,6255 105	1 106	ENDSERV	33,6241 593	5 589 593
DVMODOF2	33,7177 615	4 128 615	ENDCHEC	22,6051 367	1 366	ENDSHUT	32,7737 589	1 588
DVMODOFF	32,7124 574	2 126 574	ENDCHEK	26,6354 663	1 669	ENDSPMM1	07,7433 536	1 550
DVMONFLG	0033 18	- - - =	ENDDPDEC	06,7053 511	1 517	ENDSPOCT	06,7437 528	- - -
DVMONMSK	4512 589	2 142 588 =	ENDECOM	06,6177 489	1 488	ENDSROT	1105 369	1 367 =
DVSTART	03,7060 88	2 87	ENDENTRY	27,7042 727	1 727	ENDSTALL	14,6361 202	- - - =
DVSW	0110 15	7 15 92	ENDERAS	11,6554 273	- - -	ENDSTATE	23,7313 321	1 321
*****	*****	*****	ENDEXIT	27,6513 721	1 716	ENDSWAY	22,6124 368	3 367
E	0000 296	3 300 301 =	ENDEXTVB	05,6065 236	22 236 251	ENDT4ERR	10,6463 170	3 165 =
EARGCADR	30,7517 745	1 744	ENDEXTVS	05,7153 264	1 540 =	ENDTASK	2260 119	3 112 147
EARROT1	25,7447 654	4 555 745	ENDFAILF	3071 295	1 523 =	ENDTEST1	34,6237 429	12 428 457
EARROT2	25,7462 654	3 353 702	ENDFIND	04,6101 101	1 101	ENDTEST	12,7406 418	20 392 429
EARRTCOM	34,6332 431	1 431	ENDFRESH	04,7135 144	2 141	ENDTST	26,7315 674	3 674
EARTHORB	25,7170 648	- - -	ENDGYRO1	10,7715 234	1 231	ENDUPDAT	13,7167 263	3 261 262
EARTHRR	34,6612 437	3 431 456	ENDGYRO	10,7721 234	2 229 234	ENDVBFAF	07,6207 500	- - -
EARTHRRAT	21,6514 344	3 340 353	ENDGYROC	10,6701 175	- - - =	ENEMA	04,7147 145	5 554 613
EARTHRR	21,6357 340	1 340	ENDIDLE	3136 535	26 211 535	ENGINEON	32,6562 568	2 130 567
EARTHRTAB	23,7430 325	3 296 328	ENDIMU	14,6264 201	5 194 199	ENGINEOFF	32,6710 571	7 128 593
ECADTEM	0117 136	2 136 =	ENDINST	3147 535	7 490 530	ENGNOFF	11,7717 289	1 289

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SYMBOL TABLE LISTING, INCLUDING PAGE NUMBER OF DEFINITION, AND NUMBER OF REFERENCES WITH FIRST AND LAST PAGE NUMBERS

SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F
ENGNON	11,7706 289	1 289	ERRORS	11,6013 265	42 265 277	FAILDISP	3043 294	1 294
ENGOFLOC	11,7724 289	1 289	ERRORSUM	1360 27	9 590 592 =	FAILEND	14,6305 201	1 197
ENORMO	31,6275 688	1 688	ERRSCAN3	10,6274 165	2 166 167	FAILITON	10,6313 166	2 166
ENORM1	31,6277 688	1 688	ERRSCAN	10,6266 165	1 165	FAILREG	1763 34	10 140 541 =
ENORM2	31,6301 688	1 688	ERRJPT	2034 36	1 35	FALNE1	34,6732 442	1 401
ENORM3	31,6267 688	3 688	ERTHRVEN	34,7754 460	1 435	FALNED1	34,7576 456	1 401
ENTAJOB	33,7361 620	1 620	ERUNITS1	34,7752 459	1 453	FALNED	12,6600 401	1 442
ENTATASK	33,7355 620	2 127 619	ERUNITS2	34,7746 458	1 451	FALTOF	3242 548	- - -
ENTER	07,6007 497	1 487	ERUNITS	34,7744 458	1 449	FALTON	3233 548	5 124 528
ENTERJMP	06,6055 487	1 486	ESCAPE2	0075 14	2 84 85 =	FBIASSUB	14,7331 223	3 222
ENTEXIT	0065 497	12 498 532 =	ESCAPE	0114 15	12 15 291	FBR3	23,6000 296	1 317
ENTMASK	30,7522 745	1 744	ESQ	1332 29	- - - =	FBRANCH	1270 24	3 317 323 =
ENTPASO	07,6035 497	3 497 534	ESQ(VR)	1546 28	1 640 =	FDAILOC	24,6140 576	1 576
ENTRET	0065 14	7 490 533 =	ESTART	04,6765 141	- - - =	FDALOFF2	24,6327 611	1 609
ENTRYFLG	0035 18	1 581 =	ETA	1356 29	1 704 =	FDAOFTSK	24,6154 576	2 128 576
ENTRYMSK	4514 580	1 579 =	EXAM2	10,7435 188	2 188	FDAONTSK	24,6143 576	1 576
ENTRYSW	30,7523 745	1 744	EXEC7OK	04,6316 107	1 101	FDOFTSK1	24,6172 577	1 260
ENTRYTOP	27,6033 699	2 132 698	EXECBANK	2075 98	8 35 479	FFFLAGS	1313 25	- - - =
ENTSET	07,7373 534	1 533	EXECCOM	2065 98	3 98 111	FIFTN	3537 626	2 565 619
ERAD/2	1240 24	- - - =	EXECSW	2071 98	1 98	FIFTY	3562 626	1 626
ERADSQ/4	1236 24	- - - =	EXECTEM1	0572 16	5 16 112	FILDELX	1114 26	5 416 456 =
ERASCHK	11,6472 272	- - - =	EXECTEM2	0573 16	10 16 112	FILDELY	1362 30	3 343 =
ERASLOOP	11,6474 272	1 273	EXECTEM3	0574 16	8 16 102	FILDELZ	1360 30	3 343 =
ERATEST	4504 48	1 44 =	EXECTEM4	0575 16	- - - =	FILENORM	26,6315 662	1 658
ERCNT	0063 14	4 492 =	EXECTEM5	0576 16	- - - =	FILTER	1356 30	5 334 356 =
ERCOM	06,6440 492	1 492	EXIT2	4571 50	1 73	FINDNAVB	34,6241 430	2 393
ERCON	06,6476 493	1 492	EXIT	03,6206 73	1 47	FINDVAC2	04,6004 99	2 98
ERCOUNT	1765 34	3 140 265 =	EXITCAD1	1474 28	2 601 =	FINDVAC	2046 98	34 124 744
ERECTND	34,7036 443	1 443	EXITCADR	1471 28	5 657 678 =	FINE+CRS	10,7336 184	1 180
ERESTORE	1760 34	4 142 273 =	EXITEM	0112 15	7 514 515 =	FINECODE	21,6744 350	- - -
ERFINAL	12,6126 394	1 394	EXITLOC2	33,7420 697	- - -	FINEMASK	2356 122	2 191
ERMINUS	06,6432 492	- - -	EXTRA I/O	05,7016 258	1 236	FINETIME	2712 191	1 415
EROPTN	1313 26	3 392 438 =	EXTVBACT	0645 18	5 236 =	FINISH	12,7256 414	3 448 451
ERPLUS	06,6435 492	1 492	EZCASE	26,7332 675	1 670	FINISHUP	26,6730 669	3 669 675
ERRCHANG	10,6255 165	2 165	*****			FIVE	4477 48	15 141 756
ERRETN	12,6130 394	- - -	F2	26,6415 664	2 663 664	FIXCLPAS	06,6311 490	- - -
ERRMASK	10,6252 165	3 165	F3	26,6441 664	- - -	FIXLOC	0067 14	49 40 747
ERRMON	10,6240 165	2 165	F4	26,6451 664	1 664	FIXRANGE	06,6707 509	1 508
ERROPT	06,6455 493	3 493	F5	26,6461 665	1 665	FIXVG	25,7073 646	1 645
ERROR1	06,6465 493	3 493	F6	26,6466 665	1 665	FLAG1DWN	3430 624	19 197 752
ERROR	06,6402 492	1 486	FACT1	1631 32	5 709 717 =	FLAG1UP	3416 624	22 213 623
ERRORMAX	33,6170 592	1 591	FACT2	1330 29	5 710 717 =	FLAG2DWN	3452 625	8 590 678
ERRORMON	10,6234 165	- - -	FACTOR	1621 31	3 718 =	FLAG2UP	3440 624	6 583 676

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J FAILED LEFTOVER WORD

M MULTIPLY DEFINED

O OVERSIZE- OR ILL-DEFINED

T WRONG MEMORY TYPE

C CONFLICT IN MEMORY

MM MULTIPLE ERRORS

X MISC. TROUBLE

SYMBOL TABLE LISTING, INCLUDING PAGE NUMBER OF DEFINITION, AND NUMBER OF REFERENCES WITH FIRST AND LAST PAGE NUMBERS

SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F
FLAGWRD1		0646 18	30 142 624	=	GCOMPSUB		14,7146 218	6 216 217	=	GOJUMP		04,7114 144	3 143 144	
FLAGWRD2		0647 18	29 114 684	=	GCOMPSW		0101 15	5 216 223	=	GOLOADLV		05,6437 249	2 235	
FLASHLOC		06,7464 528	2 528 530	=	GENPL		1100 26	62 26 458	=	GOLOC		0122 136	12 135 138	=
FLASHOF1		06,7462 528	1 486	=	GETANGLE		27,6160 702	- - -	=	GOMAXL/D		27,6704 725	2 724	
FLASHOFF		06,6003 486	3 249 530	=	GETCADR		04,6622 117	2 116	=	GOMEGA		21,7007 351	1 344	
FLASHON1		06,7453 528	2 486 528	=	GETDHOOK		31,7206 711	1 710	=	GOMXL/D1		27,6371 719	3 718 720	
FLASHON		06,6000 486	11 211 529	=	GETDT		10,7672 234	4 229 232	=	GONEGLAD		27,6677 725	1 723	
FLNDX12		12,7755 425	3 401	=	GETETA2		30,7001 704	1 704	=	GONEPAST		0006 18	3 723 726	=
FLNDX		34,7740 458	1 442	=	GETETA		30,6772 704	1 701	=	GOODEND		14,6314 201	4 197 212	
FLTRZERO		12,7343 416	2 416 456	=	GETFF		32,7353 582	1 581	=	GOPOSLAD		27,6670 724	3 717 725	
FORTY		3561 626	1 626	=	GETINREL		06,6222 489	4 487 495	=	GOPROG2		04,7020 142	1 142	
FOUNDR		1130 23	1 306	=	GETKTIME		23,6022 296	1 302	=	GOPROG		04,7005 142	1 35	
FOUNDV		1136 23	1 307	=	GETMANU		33,6477 601	2 598	=	GORETURN		04,7130 144	2 146	
FOUNDVAC		2076 98	3 101 114	=	GETNEWX		23,6242 301	1 301	=	GO/ON1		24,6447 622	- - -	
FOUR		5502 65	16 45 576	=	GETNUOGC		30,6756 390	1 390	=	GO/ON		24,6433 622	1 621	
FOURTH		30,7054 736	3 384 704	=	GETNUV1		31,7432 714	1 714	=	GOSHOSUM		05,7014 257	1 235	
FOURTN		3536 626	2 573 698	=	GETOGC		25,6102 630	1 630	=	GOTERM		04,7166 146	1 144	
FRECT		34,7612 456	2 409 457	=	GETPTCH2		26,7521 678	2 678 680	=	GOTOADDR		1374 29	9 703 744	=
FREDSPDO		07,7505 552	1 552	=	GETPTCH		26,7517 678	11 658 676	=	GOTOUPSY		27,6202 716	1 713	
FREEDSP		3362 552	28 210 727	=	GETRANDV		23,6406 306	2 301	=	GOTRANGE		25,6634 642	1 646	
FREERET		0113 15	2 552	=	GETRANGE		25,7103 646	1 642	=	GRABDSP		3302 550	24 210 727	
FREWAIT		07,7501 552	1 552	=	GETTFF3		31,6243 688	1 687	=	GRABLOCK		0630 17	9 148 552	
FRESHPD		30,6264 375	22 450 739	=	GETTFF		31,6212 687	1 686	=	GRABUSY1		07,7434 550	1 497	
FULHAM		25,7166 647	1 645	=	GETUNB		30,7243 739	2 620 729	=	GRABUSY		3313 550	2 122 550	
FULLDT		10,7740 234	1 231	=	GETUNI		27,6136 701	1 704	=	GRABUSYB		07,6001 497	1 550	
FV1		04,6020 99	5 99	=	GETUNITV		27,6076 700	1 700	=	GRAD		1422 29	2 723	=
FV		1202 24	11 311 324	=	GETVCOR		31,7367 713	1 713	=	GRAVITY		1007 22	3 639 750	=
FX		1100 25	8 724 732	=	GIMLOCK1		22,6724 469	2 468	=	GTSFIN		05,7222 541	1 516	
FXADRS		11,6664 275	2 276	=	GIMPOWOF		32,7110 574	3 126 574	=	GTSFOUT		05,7213 541	1 507	
FXCON1		11,7023 277	1 275	=	GIMPOWON		32,6511 567	7 129 622	=	GYDRFT		12,6511 400	1 257	
FXCON2		11,7024 277	1 275	=	GIVENT		1260 24	1 301	=	GYRCMC1		21,6766 351	1 346	
FXFXBNKS		11,6660 275	1 275	=	GLIMITER		27,6711 725	2 724 725	=	GYRCMC2		21,6770 351	1 346	
FXFXCHK		11,6650 275	1 277	=	GMAX/2		30,7201 738	2 725	=	GYRCMC3		21,6772 351	1 346	
FXFXWORD		11,7054 278	2 278	=	GMODE		1272 24	2 300 301	=	GYRCMC4		21,6774 351	1 347	
FXSWBNKS		11,6676 275	2 277	=	GMPOFF1		33,7147 615	1 614	=	GYRDRFT1		12,6521 400	- - -	
*****					GMPOFF2		33,7166 615	2 128 615	=	GYRDRFT2		12,6523 400	3 414 423	
GAMCHECK		25,7120 646	1 643	=	GMPOFF3		32,7121 574	2 126 577	=	GYROADV		10,7560 231	2 231 233	
GAMMAL1		0026 732	5 710 713	=	GMPOFF		32,7101 574	- - -	=	GYROADVS		10,7512 229	3 229 230	
GAMMAL		1607 31	6 711 715	=	GMPON		32,7057 573	- - -	=	GYROANG		1340 30	13 340 353	=
GBIASX		0744 21	3 216 542	=	GOCADR		04,7350 150	1 146	=	GYROBSY2		14,7543 228	1 227	
GBIASY		0745 21	2 216 222	=	GODSPALM		07,6356 503	13 497 534	=	GYROBUSY		14,7524 228	2 224 225	
GBIASZ		0746 21	2 217 222	=	GOGETUNB		33,7367 620	- - -	=	GYROCOM		21,6574 346	1 340	
GCOMP		0756 21	15 149 221	=	GO-ON		25,6774 644	1 646	=	GYROCSW		1320 29	8 334 371	=

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SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F
GYROD	1234	26	6	396 438 =	IGC	1522	30	11	370 729 =	INHITEM	0572	16	6	253 255 =
GYRODPNT	14,7433	226	4	242 379	IGN-4SEC	30,6221	330	1	329	INILODIF	1105	23	2	255 256 =
GYROEX2	14,7376	224	1	227	IJUMP	4370	46	2	46	INILOOK	05,6603	254	2	253 255
GYROSPNT	14,7347	224	2	221 396	IMACT2	14,7003	213	1	213	INILOSAY	1103	23	7	253 255 =
GYROSPTW	14,7404	225	-	-	IMJACTW	14,7011	213	1	213	INILOTEM	0573	16	6	253 255 =
GYROTORK	12,6203	395	1	257	IMUATTC	14,6223	199	5	244 613	INIPREP	05,6624	254	2	254
GYROWAIT	10,7612	231	-	-	IMJATTCK	05,6262	244	1	235	IN2	0006	12	15	156 754 =
=====					IMJATTCV	05,6315	244	1	244	IN3	0007	12	20	140 545 =
H	1264	24	10	296 323 =	IMJCADR	0733	20	2	20 149	INATAN	30,6505	383	1	383
HALF	4522	48	23	83 757 =	IMJCHK1	12,6434	398	1	399	INCADR	4364	45	4	38 78
HALFDP	22,7177	476	7	370 463	IMJCHK2	12,6435	398	1	399	INCEX-	10,7443	188	2	188
HALFSEC	33,6252	594	1	593	IMJCHK	12,6372	398	1	257	INCLOOP2	05,6204	241	1	241
HALVE	30,7173	737	8	383 714	IMJCHKR	12,6406	398	1	401	INCLOOP	05,6177	241	3	241 245
HBRANCH	1271	24	4	307 322 =	IMJCOARK	05,6142	240	1	237	INCNOUT	06,6640	496	3	496 527
HEADWN1	33,6346	596	1	596	IMJCOARS	14,6104	195	3	240 433	INCNOUTU	04,7511	479	1	478
HEADWN2	25,7441	652	1	652	IMJCOARV	05,6166	240	2	240 248	INCORPEX	1303	25	-	- - =
HI10	04,7507	479	1	478	IMJCORK	05,6352	246	1	235	INCR	03,6134	72	3	47 72
HI4	30,6771	391	1	390	IMJFAIL2	10,6316	166	1	166	INCRCDU2	30,6420	381	1	381
HI5	2261	189	9	173 514 =	IMJFAIL3	10,6312	166	1	166	INCRCDUS	30,6415	381	2	578 638
HIECC1	31,6442	693	1	694	IMJFAIL	10,6305	166	1	166	INCRMT	22,6255	371	3	370 371
HIECC	31,6464	693	2	684 685	IMJFINE	14,6143	196	5	242 400	INCR2	5412	63	9	59 79
HIGH11	25,6070	629	-	-	IMJFINED	14,6171	197	3	194 234	INCR4	5302	61	2	60
HIGH4	33,7354	619	1	618	IMJFINEK	05,6220	242	1	235	IND	0107	15	6	66 =
HIND	0012	18	3	713 714 =	IMJFINEV	05,6252	242	1	242	INDEX	4233	43	1	38
HMAG	1274	24	-	-	IMJFINIS	14,6241	199	1	350	INDIRECT	13,6625	136	1	135
HUNGCODE	04,7035	142	1	142	IMJFINNW	14,6163	196	1	559	INDJUMP	4367	46	2	44 45 =
HUNGMASK	04,7341	150	1	142	IMJLOCK	14,6205	198	2	243 398	INFLANG	1332	29	19	335 360 =
HUNTCADR	31,6700	706	1	707	IMJLOCKD	14,6214	198	2	198	INHINT	0017	12	4	270 277 =
HUNTDUMP	27,6203	716	-	-	IMJLOCKK	05,6253	243	1	235	INITCADR	30,7516	745	1	744
HUNTEST1	31,7105	709	3	709 715	IMJURECOR	14,6134	196	1	246	INITEST	32,7602	587	2	585
HUNTEST	31,7007	708	3	706 720	IMJREENK	05,6316	245	1	235	INITFLAG	0027	18	-	- - =
HUNTESTA	31,7025	708	1	708	IMJREENT	14,6216	199	4	245 697	INITISE	32,7617	587	1	587
HUNTSW1	0011	18	2	709 =	IMJREENV	05,6351	245	1	245	INITL/D	1575	31	4	581 707 =
=====					IMJRELK	05,6451	250	1	250	INITMASK	4506	588	1	587 =
IBNKCALL	5742	292	5	136 577	IMJUSTALL	14,6331	202	35	221 697	INITMSK	30,6251	331	-	- -
ICORK2	05,6153	240	2	241	IMJSTART	10,7322	183	1	183	INITRL1	31,6767	707	1	706
ICSDEL	05,6167	241	1	240	IMJZERO	14,6000	193	4	239 400	INITROLL	31,6701	706	1	745
IDAD1TEM	0056	14	5	501 540 =	IMJZEROD	14,6022	193	1	193	INREL	0076	15	22	488 495 =
IDAD2TEM	0057	14	1	540 =	IMJZEROK	05,6126	239	1	236	INRELTAB	06,6226	489	2	489 494
IDAD3TEM	0060	14	2	540	INO	0004	12	7	142 206 =	INRLSW	0017	18	2	706 =
IDADDTAB	05,7515	545	3	540	IN1	0005	12	4	253 255 =	INT1	4024	63	3	54 59 =
IDADDTM	0103	15	-	-	INHIDIF	1104	23	2	255 256 =	INT1FLAG	0031	18	1	585 =
IFAILOK	14,6201	197	4	141 196	INHISAV	1102	23	2	253 255 =	INT	1364	30	3	348 =

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SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F
INTCON1	34,7736 458	2 443	-OCT50	14,6714 211	1 211	K44	30,7225 738	1 707
INTERPIP	27,7147 731	2 698 731	-ON	06,6343 491	3 490 525	K	34,6233 429	1 428
INTGRATE	23,7116 317	1 317	-ONECHK	11,6034 266	17 268 282	KACOS	30,7155 737	1 704
INTMATBS	07,6110 498	2 498	-PHASE1	0656 19	4 120 747 =	KASCALE	30,7133 737	1 701
INTPFLAG	0026 18	1 585	-SIN(13)	30,7215 738	1 739	KAT	30,7231 738	1 707
INTPMASK	32,6351 563	- - -	-UPADR	1122 23	8 261 264 =	KB1	30,7111 736	1 718
INTPRET	4000 37	105 50 753	-VXSC	4340 45	1 45 =	KB2	30,7113 736	1 718
IPiPDT1	27,7177 731	1 731	-ZEROCHK	11,6023 265	9 268 281	KC3	30,7165 737	1 713
IPiPDT	27,6032 698	1 698	=====			KCHECK	14,6070 194	5 193 195
IPRODC2	4072 39	1 37	J2REQSQ	23,7436 325	1 314	KDMIN	30,7067 736	1 721
IPROC	4065 39	2 38 52	J4REQ/J3	23,7442 325	2 313	KENABLE	04,6771 141	1 140
ISWCALL	5750 292	4 337 698	JACKPOT	10,7377 187	4 163 175	KEP2	27,6475 721	2 706 722
ISWRETRN	5761 292	4 138 742	JAMEXTVB	07,6136 499	1 487	KEP3	27,6505 721	1 722
ITA1	03,6174 73	1 47	JAMTERM	3151 535	4 553 611	KEP	27,6467 721	1 717
ITANCO	31,6362 690	1 690	JJ	1107 25	9 723 724 =	KEPCADR1	31,6677 706	1 706
ITANC1	31,6436 692	1 691	JOBSLEEP	2127 106	20 109 551	KEPCADR	27,6521 722	1 721
ITANC3	31,6437 692	1 691	JOBSLP1	04,6267 106	1 106	KEPLER2	23,6065 298	1 296
ITANC5	31,6440 692	1 691	JOBWAKE2	04,6110 102	2 98 102	KEPLER3	23,6224 301	1 296
ITANC7	31,6441 692	1 691	JOBWAKE3	04,6140 102	4 102	KEPLER	23,6026 297	1 296
ITCF	5612 69	1 46	JOBWAKE4	04,6047 101	1 102	KEPSILON	23,6277 303	1 301
ITEMP1	0577 16	29 119 295 =	JOBWAKE	2060 98	18 123 552	KEYCALL	14,6674 210	1 206
ITEMP2	0600 17	19 162 396 =	JSTERTHR	21,6347 340	- - -	KEYRUPT1	04,7363 477	2 99 478
ITEMP3	0574 16	4 188 =	JSWITCH	0001 18	4 317 322 =	KEYRUPT	2042 36	1 35
ITERNO	12,6366 397	1 395	JUMP10	33,6034 590	1 590	KEYRUPTA	14,6461 206	2 36
ITSAPRIO	13,6713 138	1 138	JUMP3	25,6023 628	1 628	KEYRUPTC	04,6001 99	1 210
IX	21,7031 352	- - -	JUMP4	33,6571 603	1 602	KEYTEMP1	0600 17	6 478 479 =
=====			JUMP6	33,6457 599	1 599	KEYTEMP2	0571 16	4 478 479 =
.05G	30,7141 737	2 706 721	JUMP7	33,6446 599	1 599	KG	10,6215 163	1 162
.333...	22,7201 476	1 468	JUMP8	25,6037 628	1 628	KILLMANU	33,7136 614	- - -
=====			JUMP9	33,6055 591	- - -	KILLMON	07,7155 522	2 522
-1/2+2	03,7066 88	1 94	JUMP	4305 44	3 44 45	KILMONON	3127 534	2 530 533
-1/2PI	31,6316 689	1 687	JUMPIT	4076 39	1 41	KLAT	30,7147 737	1 726
-310SEC	24,6176 577	2 576 577	JUMPY	21,6436 341	2 340	KPIP	30,7741 750	3 590 747
-BIT14+1	10,7176 181	1 177	J(RE)SQ	30,7753 750	1 749	KRANGE0	25,7142 647	1 642
-BIT4	10,6343 166	1 166	=====			KRANGE1	25,7144 647	1 642
-BIT9	2311 120	1 120	K1D	30,7125 737	1 720	KRANGE2	25,7146 647	1 642
-CCSFINE	21,6731 349	1 349	K1ROLL	1450 29	12 390 728 =	KR(TVC)	33,6402 597	1 596
-CCSPR	04,6322 107	1 108	K1STEER	33,6164 592	1 591	KSAMP1	10,7250 182	1 180
-DUMCODE	10,6201 163	4 163 175	K2	5475 65	6 61 66	KSAMP1A	10,7263 183	2 182
-.25SC21	21,7012 351	- - -	K2D	30,7127 737	2 720	KSAMP2	10,7131 180	3 180 182
-.5SEC75	05,7137 260	- - -	K2ROLL	1372 29	7 726 744 =	KSAMP2A	10,7312 183	2 183
-MODE20	10,6417 168	1 168	K2STEER	33,6166 592	1 591	KSAMP2B	10,7211 181	1 180
-NMBR	11,6434 271	1 271	K3ROLL	27,7202 732	3 728 738	KSAMP3A	10,7317 183	2 183

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LQPL	05,7013	257	1	257	MANOPTZ	10,7360	186	1	179	MIXNN2	07,6242	501	1	501
LREMKDSP	14,6673	210	1	210	MANQZD	10,7372	186	1	186	MIXNOUN	07,6210	501	1	498
L/D	1222	25	15	706 728	MANJJOB	33,6560	602	1	602	MIXTEMP	0073	14	3	494 501
L/DCMINR	30,7175	738	2	726 728	MANZTEST	10,7145	181	1	180	MKDSPBSY	14,6670	210	1	210
LST1	0552	16	30	112 147	MARK2	14,6543	208	1	207	MKDSPCOD	14,6672	210	1	210
LST2	0561	16	24	112 147	MARK3	14,6552	208	1	208	MKREJECT	14,6611	209	2	206 249
LST2CADR	07,6144	499	1	499	MARK	14,6462	206	-	-	MKRELEAS	14,6453	205	4	360 430
LST2CON	07,6143	499	1	499	MARKDISP	14,6651	210	1	207	MKSTAT1	1304	26	4	430 431
LST2FAN	05,6000	235	1	499	MARKERCT	0676	19	6	151 154	MKVACFND	14,6432	204	5	204
LSTBUFF	13,7132	263	2	261 262	MARKEXIT	14,6447	204	-	-	MKVB50	14,6750	212	2	208 212
LSTEMPTY	07,7524	552	1	552	MARKOK	14,6416	204	1	204	MKVB51	14,6677	211	2	204 212
LSTFULL	07,7526	552	3	550 551	MARKSTAT	0735	20	31	149 432	MKVB5X	14,6736	212	4	211
LSTPTR	0113	15	4	550	MATBSUB	07,7416	534	1	534	MMCHANG	07,7273	528	1	500
LT4RUPTA	2650	159	1	159	MATXDET	34,6420	432	1	431	MODABORT	14,6357	202	2	202
LTHCOMA	2561	155	1	151	MAXPROG	4477	141	3	140 144	MODALARM	10,7240	182	-	-
LTHCOMB	2562	155	1	152	MAXPTS2	1307	26	2	392 438	MODE21	10,6425	169	1	168
LTHD+2	05,6217	241	1	241	MAXROLL	1702	33	1	557	MODE23	32,7140	575	1	574
LTHLSTA	2563	155	1	152	MBXCH	03,6767	86	2	86	MODE26	24,6477	623	3	132 622
LTHLSTB	2564	155	1	153	MD1	3231	547	1	536	MODE32	24,6457	622	1	622
LTHVACA	04,7357	150	4	148	MDT	1444	28	4	590 591	MODE44	32,7143	575	1	573
LTNDX0	12,6534	400	1	400	MDTINIT	33,6033	590	1	590	MODE	0065	14	21	14 388
LTNDX+	12,6536	400	1	400	MEASMODE	1300	24	8	326 546	MODEBANK	2045	36	1	36
LTSKOV	04,6534	114	1	117	MEASQ	1276	24	2	542 546	MODECADR	0733	20	8	201 202
LTSTNDX	1216	26	3	400 409	MG2	14,6341	202	1	202	MODECHNG	10,7456	189	2	181 185
LUNDEBST	25,7174	648	-	-	MGC	1524	30	13	370 729	MODEEXIT	14,6020	193	6	195 224
LUP	5521	66	1	66	MID5	3221	547	2	287 514	MODEGOOD	14,6344	202	1	202
LV75TEMP	05,7143	260	1	258	MID6	07,7422	534	2	533 536	MODESAMP	10,6711	176	-	-
LVDSRUPT	2262	173	4	172 184	MIDEXIT	1302	24	3	326 329	MODESET	4164	41	1	41
LVENDMOD	14,6311	201	2	201	MIDSIX	3077	523	2	523 533	MODESLP	14,6352	202	1	202
LVKSAMP	10,7260	182	5	180 184	MINRANGE	25,7150	647	1	646	MODREG	0612	17	12	122 536
LVOPTSMP	10,7074	179	7	177 178	MINJS13	5363	62	1	97	MODROUT	04,6653	124	1	99
LVWTLIST	2076	114	1	112	MINJS14D	13,7174	263	1	261	MODROUTB	04,6002	99	1	529
LXA	03,6077	71	1	47	MINJS1	4335	45	6	37 265	MON1TASK	32,6066	556	2	125 554
LXC	03,6104	71	1	47	MINJS2	4340	45	5	45 265	MONBACK	07,7213	523	1	523
					MINJS	03,6036	70	2	70	MONBUSY	07,7214	523	1	522
M1	1421	29	3	723 724	MISALIGN	34,6000	426	1	439	MONDEL	07,7161	522	1	522
MAKECADR	5706	291	15	123 535	MISC2	4135	40	1	40	MONDO	07,7162	522	1	522
MAKESERV	32,7203	579	3	579 580	MISCPROC	4113	40	1	39	MONIT1	07,7104	521	-	-
MAKEXSM	21,7445	362	4	333 435	MISCREL	4143	40	1	40	MONITFLG	0032	18	1	556
MALAPROP	05,7145	264	5	259 260	MIXAD	07,6254	501	1	501	MONITJOB	32,6074	556	3	128 558
MALSJOB	31,7520	753	-	-	MIXBR	0107	15	13	498 540	MONITMSK	32,6072	556	-	-
MANCDU	10,7337	185	1	181	MIXCON	05,7167	540	1	540	MONITOR	07,7102	521	7	499
MANIZD	10,7350	185	1	185	MIXNN1	07,6224	501	1	501	MONMASK	07,7212	523	1	522

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MONREQ	07,7137	522	2 521	522	NBRESUME	2266	119	5 36	159	NEGTESTS	27,6353	719	2 719	720
MONSAVE1	0626	17	8 148	534	NBSM1	22,6551	465	1 465		NEGTHET	1366	29	-	-
MONSAVE	0625	17	7 148	523	NBSM2	22,6530	465	1 465		NEGVX	30,6533	383	1 383	
MONTEM	0066	14	-	-	NBSM	22,6523	465	6 359	442	NEQRET	4566	49	-	-
MORE	21,6456	343	1 343		NBSMBIT	0005	18	9 354	466	NEWABORT	3056	295	1 295	
MOREZERO	14,6024	193	-	-	ND1	3230	547	4 490	529	NEWALARM	3024	293	1 293	
MORNUM	06,6206	489	2 488		NDXCTR	1224	26	32 392	440	NEWALM2	3035	293	1 294	
MP++	11,6212	268	-	-	NEAR1/4	30,7063	736	2 702		NEWBIAS	30,6743	390	2 390	
MP+-	11,6217	268	-	-	NEAR+MP	26,6411	664	1 663		NEWDLTAV	1114	23	-	-
MPAC	0115	16	535 34	757	NEARONE	30,7042	736	15 382	717	NEWEQIND	0066	14	17 14	387
MPACCOM	4740	53	6 60	90	NEGO	5504	65	3 172	265	NEWEQUN	4005	37	3 49	52
MPACRND	5072	56	1 76		NEG13	5363	97	2 69	74	NEWGYRO	14,7533	228	2 228	234
MPACSR1	03,7300	93	2 94		NEG14	5642	69	1 723		NEWHIGH	04,6102	101	1 101	
MPAGAIN	11,7152	279	1 280		NEG180	06,7114	517	1 517		NEWJOB	0215	16	28 38	403
MPCHK	11,6210	268	-	-	NEG1	4335	48	8 50	551	NEWMODE	2362	122	43 169	744
MPHIGH1	11,7134	279	1 279		NEG1/2	4520	48	8 80	553	NEWNUV	1122	23	-	-
MPHIGH2	11,7172	280	1 280		NEG1/8	27,7202	738	-	-	NEWPHASE	2312	120	70 337	747
MP--	11,6232	268	-	-	NEG1/8+1	30,6741	390	1 390		NEWPRIO	0577	16	11 16	109
MP--	11,6225	268	-	-	NEG2	4340	48	5 45	231	NEXT1	27,6345	718	1 718	
MPNMBRS	11,7113	279	3 278	282	NEG3	4341	45	4 104	568	NEXT	03,6341	76	1 47	
MSIGN	4563	49	1 112		NEG5	07,6115	498	1 498		NEXTCHGE	13,7034	262	4 262	
MTRXLD1	12,7753	425	1 421		NEG7	10,6705	176	1 176		NEXTCOL	23,7303	321	3 321	322
MTRXLD	34,7741	458	1 446		NEGAMA	31,7447	715	1 711		NEXTCOMP	13,7007	261	1 262	
MUE	25,7375	651	5 640	650	NEGARGU	03,6740	84	1 82		NEXTMAN	33,6613	603	1 603	
MUEARTH	30,7747	750	1 749		NEGCDU1	1565	27	4 395	396	NEXTRUPT	22,6113	367	-	-
MUE(37)	31,6310	688	1 684		NEGCDU2	1566	27	7 395	396	NINE	3532	626	4 335	589
MUE(41)	25,7541	656	1 640		NEGCOM2	10,6163	163	1 162		NINETEEN	3543	626	3 334	567
MULTEXIT	3015	293	1 293		NEGCOM	10,6641	174	1 174		NINTHOU	12,7746	425	2 402	419
MULTFAIL	3021	293	1 293		NEGDECON	06,6220	489	1 488		NNADTAB	05,7231	541	1 540	
MUM	25,7377	651	2 648	649	NEGFLAG	0047	19	8 658	665	NNADTEM	0054	14	7 498	540
MUMOON	30,7751	750	1 749		NEGGOUT2	10,7663	232	1 232		NNICDU	05,6113	238	1 238	
MU/RSQ	30,7731	749	1 749		NEGGOUT	10,7650	232	1 231		NNOCDU	05,6122	238	1 238	
MXV1	5316	61	1 46		NEGGOUTS	10,7537	229	1 229		NNTYPTAB	05,7331	542	1 540	
MXV2	5324	61	1 61		NEGIDEX	4060	38	1 38		NNTYPTM	0055	14	5 506	540
MYROT1	22,6320	372	1 372		NEG.2	06,7126	518	1 518		NODELTA	32,7703	588	1 588	
MYROT	22,6312	372	2 372		NEG.5SEC	21,7013	351	-	-	NODISP	33,6156	592	1 592	
MYTEST	22,6147	370	-	-	NEGMAX2	10,7636	232	1 232		NOFAIL	10,6350	167	10 166	
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NO.05G	27,6515	721	1	721	N/VCOM	06,6266	490	1	490	OCT40020	5070	56	1	192
NO.WDS	4475	48	3	45 48	NSHIFT	1040	22	2	746 748	OCT50	04,7343	150	1	141
NOKEYBUF	04,7371	477	-	-	NUDELTAT	30,7520	745	1	744	OCT60	10,7315	183	2	183
NOKILL	11,7061	278	1	278	NULONGDT	13,6724	138	1	136	OCT76	14,6747	212	1	211
NOLoad	03,6352	76	1	47	NUM	06,6072	487	9	486 487	OCT77407	10,7407	187	1	187
NOMBURN	31,6320	689	1	684	NUMBOPT	1273	24	-	-	OCT77	32,7574	586	-	-
NOMCASE	32,7406	583	1	582	NUMBTEMP	1272	24	-	-	OCTBACK	07,7254	525	1	528
NOMKACPT	10,7003	177	1	176	NUMODE63	30,7441	744	1	133	OCTIDNV	13,7055	262	1	262
NOMRKRS	4473	155	2	152 153	NU/PIPD	30,7521	745	1	744	OCTNEG30	31,6304	688	1	688
NONINDEX	4257	44	3	38 43	NUV	1007	22	2	22 321	OCTNEG6	31,6305	688	1	688
NONJUMP	4433	47	1	40	NVAL	0577	16	6	16 115	OFAILSET	10,7032	178	1	178
NONNWJOB	10,6405	168	1	168	NVCODE	1301	24	-	-	OFAILTST	10,7034	178	2	178
NOOP	4713	52	1	50	NVSBACDR	0631	17	2	533	OFFCOUNT	11,6443	272	1	271
NOOPCOM1	10,7052	178	2	178	NVSBENDL	06,7447	528	1	528	OFFMASK	10,6762	177	3	181 185
NOOPCOM	10,7043	178	1	177	NVSJB1	07,7354	533	2	497 533	OFFMSK	14,6260	200	1	200
NOOPRSET	10,7076	179	3	178 179	NVSJB2	07,7411	534	1	534	OGC	1520	30	31	251 729
NOOPTCDU	10,6463	170	2	171	NVSJB	3100	533	42	210 727	OGCZERO	12,7331	416	5	393 456
NOPLWAIT	21,6236	337	3	337 754	NVSJBANK	3120	533	1	533	OHWELL	13,7010	261	2	261 262
NORMBYE	31,6254	688	1	685	NVSJBB	07,6000	497	1	533	OLDBT1	0755	21	4	222 583
NORMGAM	1305	25	-	-	NVSJBCOM	3111	533	1	533	OLDERR	0726	19	34	140 545
NORMLIMS	26,6200	660	3	658 667	NVSJBEND	3125	533	4	528 534	OMEGA	23,7466	325	1	316
NORMLISE	30,7524	746	-	-	NVSJBMON	3121	533	3	252 523	OMEG/MS	34,7732	458	2	436 460
NORMTEST	03,7370	96	-	-	NVSUBSY1	07,7456	550	1	497	ONALARM	10,7023	178	2	178
NOROOT	31,6173	687	-	-	NVSUBSYB	07,6002	497	1	550	ONE	4516	48	229	37 756
NOSTATE	24,6307	610	2	328 609	NVSUBUSY	3320	550	5	210 551	ONETENTH	22,6146	369	1	367
NOT179	26,6032	657	1	675	NVTEMP	0110	15	7	212 533	ONOK	10,7041	178	1	178
NOTBIT12	06,6477	493	2	492	NWALM	10,6355	168	1	164	OPDEGIN2	06,7150	518	2	518
NOTEST	26,6151	659	1	659	NWJOB	10,6364	168	1	168	OPDEGOUT	06,6653	508	1	507
NOTUMASK	32,6335	560	1	560	NWMASK	10,7503	189	1	168	OPOVF	5777	69	10	39 96
NOTUMBLE	24,6105	561	1	561	NXTBNK	11,6750	276	2	276 278	OP/INERT	05,6105	238	3	236 250
NOTUMSK1	24,6111	561	1	561	=====					OPTBITS	10,6770	177	1	176
NOUN	06,6274	490	1	487	OBLATE	23,6671	312	-	-	OPTCADR	0734	20	2	149 431
NOUNADD	0624	17	37	498 534	OCT00767	10,7406	187	1	187	OPTCFAIL	10,7027	178	2	177
NOUNREG	0603	17	13	148 540	OCT05000	2143	110	-	-	OPTCHK	21,7252	358	1	349
NOUNTEM	0064	14	3	501	OCT122	10,7737	234	1	234	OPTCOARK	05,6367	248	1	237
NOUT	0707	19	11	149 496	OCT14	10,7335	184	3	182 183	OPTCOARV	05,6166	248	1	248
NOUTCON	04,7347	150	1	149	OCT32	06,6062	487	1	487	OPTCODES	10,7472	189	1	175
NOVAC2	04,6027	99	2	98 101	OCT37440	31,6303	688	1	688	OPTCOMM2	10,6764	177	2	178
NOVAC3	04,6105	101	2	99 100	OCT37775	10,7254	182	1	179	OPTCOMM3	10,7000	177	1	177
NOVAC	2052	98	30	114 731	OCT37776	13,6663	137	1	137	OPTCOMM	10,6751	177	1	177
NOWAKE2	04,6100	101	1	102	OCT40002	4656	51	1	181	OPTCTEST	10,6773	177	3	177
NOWAKE	04,6143	102	2	102 104	OCT40003	4650	51	1	41	OPTDATA	12,6004	392	1	392
NREAD	12,6673	404	-	-	OCT40010	04,7344	150	1	140	OPTDEGIN	06,7143	518	1	516

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SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F
OPTICSB	06,6475	493	1	493	P4*/16	0004	325	1	313	PIPASR	30,7313	741	5	338 743
OPTIND	0703	19	12	147 250	PAC	1522	30	2	473 475	PIPAX	0044	12	17	335 741 =
OPTMASK	10,7466	189	-	-	PACD/M	23,7464	325	1	316	PIPAY	0045	12	14	335 741 =
OPTMODES	04,7342	150	2	140 143	PACIFIC	32,7336	582	1	582	PIPAZ	0046	12	10	335 741 =
OPTOUT	10,6523	171	1	171	PARTSL1	03,6731	84	2	80 82	PIPCAD21	21,6264	338	1	337
OPTSAMP	10,6734	177	2	176	PASTEVB	3071	523	1	523	PIPCAD24	24,6456	622	1	620
OPTSTALL	14,6327	202	6	247 432	PASTIT	25,7110	646	1	643	PIPCADR	32,7254	580	1	579
OPTTEST	10,6501	171	1	164	PBIASX	0736	21	2	21 546	PIPCALC	34,7260	450	1	448
OPTTRKON	05,6415	249	1	249	PBIASY	0740	21	1	546	PIPCCTR	1414	29	7	698 731 =
OPTTRONK	05,6407	249	-	-	PBIASZ	0742	21	1	546	PIPINDEX	1221	26	19	394 423 =
OPTX	0052	12	5	160 545	PBODY	1037	22	1	326	PIPJUMP	14,7055	215	1	220
OPTY	0053	12	5	160 545	PDA	0026	476	4	475	PIPNDX	1226	26	8	394 445 =
OPTZERO	05,6367	247	1	247	PHASCH2	2321	120	1	120	PIPOVF	14,7216	220	2	214
OPTZEROK	05,6361	247	-	-	PHASCHNG	2276	120	34	335 751	PIPSETUP	27,7172	731	-	-
OPTZTEST	2756	192	1	192	PHASDATA	0601	17	6	120 121	PIPSLECT	1111	369	14	366 367 =
ORDER	0063	14	18	14 385	PHASE1	0650	19	4	120 146	PIPTIME	1464	28	16	157 751 =
OSAMPTM	0640	17	12	176 179	PHASE2	0651	19	1	568	PIPTST	12,6725	406	-	-
OUT0	0010	12	2	159 173	PHASE2A	2505	154	1	152	PIPUP	27,6004	698	3	579 698
OUT1	0011	12	49	140 613	PHASE36A	2517	154	2	152 153	PITCH1	32,6112	556	-	-
OUT2	0012	12	11	163 757	PHASE3	0652	19	-	-	PITCH	1315	31	-	-
OUT2MASK	10,7465	189	1	175	PHASE4	0653	19	-	-	PITCHDT	27,7146	730	1	730
OUT2SUB	10,6631	174	11	171 232	PHASE5	0654	19	2	339	PLFINCHK	21,6721	349	1	358
OUT4	0014	12	3	154	PHASE5A	2450	152	1	152	PLOW	1563	27	5	289 396 =
OUT	22,6257	371	1	370	PHASE6	0655	19	-	-	PLPIPADT	21,7011	351	1	335
OUTCR1	0042	12	5	163 757	PHASEBAR	0656	19	3	19 142	PLPRIO	21,6712	349	-	-
OUTCR1W2	13,7322	757	-	-	PHASECHK	04,7041	142	3	142 143	PLSTCHK	21,6706	349	-	-
OUTCR1WT	13,7310	757	10	754 756	PHASETAB	0650	19	7	19 142	PLUSMP	26,6346	663	1	663
OUTCR2	0043	12	-	-	PHASEXIT	2333	120	1	121	PLUSPOLE	26,6075	658	1	658
OUTGYR1	34,6640	438	1	438	PHAZING	1104	369	1	366	PLUSX2	24,6463	622	3	131 621
OUTGYR	34,6633	438	5	431 456	PHIV	1166	24	5	320 323	PLUSXOFF	32,6663	569	2	130 564
OVCON	11,6000	265	1	270	PIBJTOFF	10,7331	183	1	182	POINT1	30,7223	738	1	718
OVCTR	0034	12	69	57 446	PINTEST	05,6000	235	-	-	POINT2	30,7235	738	1	712
OVERADAY	25,7506	654	1	654	PIP1	12,6155	394	2	394	POINT8	30,7233	738	1	712
OVERNOUT	27,7032	727	2	721 745	PIP2	12,6160	394	1	394	POINTER	0115	136	9	135 138 =
OVERYET	26,6713	668	8	663 668	PIP2ADR	12,6202	394	3	394	POLISH	0076	14	27	38 78 =
OVFIND	0122	16	23	55 714	PIPABIAS	0736	21	1	214	POLY	5554	67	5	81 382
OVFSET	04,6226	105	1	105	PIPAFAIL	10,6346	166	1	166	POLYCOEF	1575	31	-	-
OVRESUME	2262	119	1	173	PIPAGE	1035	22	5	337 743	POLYEND	1613	31	-	-
OVRUPT	0031	12	3	118 161	PIPANO	1222	26	6	403 404	POLYENT1	32,6245	558	1	556
*****					PIPASCF	0737	21	2	214 220	POLYENTR	1573	31	1	558
P2*/8	0000	325	1	312	PIPASCFX	0737	21	2	21 546	POLYLUP	5576	68	2	67 68
P3*/4	0002	325	2	313	PIPASCFY	0741	21	1	546	POLYORDR	1574	31	1	558
P3CADR	27,6522	722	1	722	PIPASCFZ	0743	21	1	546	POS1	34,7050	444	5	444 446

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POS1/16	23,6307 303	1 304	PREAVGON	24,6335 611	4 129 611	PRI025	2160 110	5 141 571
POS1/2	4522 48	3 48 112	PREDANG	1106 25	2 724	PRI026	2161 110	- - -
POS1/4	23,6303 303	1 304	PREDICT3	27,6544 723	1 722	PRI027	2162 110	4 341 697
POS2	34,7055 444	1 444	PREFINAL	27,6531 722	2 710 721	PRI02	4504 110	1 277 =
POS3	34,7075 444	1 444	PREGBSY	3310 550	21 210 453	PRI030	2163 110	- - -
POS4	34,7121 446	1 444	PREHUNT	31,7515 716	1 127	PRI031	2164 110	4 353 552
POSCOM2	10,6166 163	1 162	PRELALTS	21,6211 337	3 336 338	PRI032	2165 110	4 204 291
POSCOM	10,6644 174	1 174	PRELDT	21,7002 351	2 336 337	PRI033	2166 110	2 255 477
POSGMBL	12,6553 400	10 421 423	PRELEXIT	21,6746 350	7 332 349	PRI034	2167 110	- - -
POSGN	06,6316 491	1 486	PRELTEMP	1321 29	6 335 357	PRI035	2170 110	7 114 622
POSGOUT	10,7640 232	1 231	PRELTER1	21,7032 353	1 339	PRI036	2171 110	1 168
POSGOUTS	10,7523 229	1 229	PRELTERM	21,6242 337	2 337	PRI037	2172 110	2 144 293
POSITON	1223 26	15 393 444	PRELXGA	1322 29	5 334 371	PRI03	2142 110	- - -
POSLOAD	12,6050 392	1 435	PRELYGA	1323 29	1 334	PRI04	4503 110	- - - =
POSMAX	4476 48	29 48 752	PRELZGA	1324 29	1 334	PRI05	2143 110	3 110 556
POSMAXDp	22,7175 476	- - -	PRENVBSY	3315 550	35 211 430	PRI06	4373 110	1 609 =
POSN10	12,7732 423	1 421	PRERECON	10,7165 181	1 181	PRI07	2144 110	2 573 574
POSN11	12,7735 424	1 421	PREROUND	5442 64	2 56 63	PRI0CH2	04,6356 109	1 109
POSN1	12,7542 421	1 421	PRESTAND	05,6545 253	1 235	PRI0CHNG	2133 109	1 110
POSN2	12,7561 421	1 421	PRESTBY1	05,6561 253	1 253	PRIORITY	0124 16	29 99 148
POSN3	12,7601 422	1 421	PRESTBY2	05,6577 253	1 253	PRIOTAB	13,6002 125	2 137 138
POSN4	12,7616 422	1 421	PRESTBY	05,6552 253	1 253	PRLRSTOR	21,7223 356	1 339
POSN5	12,7632 422	2 421 423	PREVTIME	1370 30	6 335 353	PRLSAVE	21,7174 356	1 339
POSN6	12,7647 422	2 421 424	PREXIT	25,7050 645	1 646	PROC1	21,7501 363	1 363
POSN7	12,7661 423	1 421	PRGBIT	4516 123	2 123	PROCTARG	21,7474 363	2 359 435
POSN8	12,7677 423	1 421	PRGRET	04,6647 123	1 123	PROG	0573 16	1 144 =
POSN9	12,7714 423	1 421	PRGSLEEP	04,6642 123	1 123	PROGLARM	3036 294	2 293 295
POSNJUMP	34,7037 444	1 393	PRGSTALL	04,6624 123	- - -	PROGON	04,7154 146	1 144
POSNRETN	12,6076 393	1 444	PRGSW	0017 18	- - -	PROGREG	0073 14	8 529 530 =
POSP1	26,6522 665	1 665	PRI010	4502 110	1 569	PSIV	1174 24	2 320 321 =
POSPLS	12,7024 407	1 407	PRI011	2145 110	- - -	PT1/16	30,7241 738	2 718
POSPOLE1	26,6401 663	1 663	PRI012	2146 110	7 554 622	PTEMP	1243 25	8 356 357 =
POSPOLE	26,6241 661	1 661	PRI013	2147 110	1 605	PTORQUE	21,6371 340	- - -
POSQUOT	03,7130 89	2 89	PRI014	2150 110	4 124 744	PTS	1311 26	3 426 428 =
POSSET	12,7513 421	1 447	PRI015	2151 110	2 584 731	PTY+ERAS	11,6103 267	- - -
POSTAND	05,6652 255	1 235	PRI016	2152 110	2 579 698	PULSEIMU	30,6375 379	1 438
POSTBY1	05,6666 255	1 256	PRI017	2153 110	- - -	PUSHDOWN	4317 45	1 38
POSTBY2	05,6724 255	1 255	PRI01	4505 110	- - -	PUSHLOC	0123 16	24 45 716
POSTBY3	05,6730 256	1 255	PRI020	4501 110	6 124 618	PUSHUP1	4326 45	3 45 73
POSTBY	05,6657 255	1 255	PRI021	2154 110	1 577	PUSHUP2	4353 45	1 42
POSTJUMP	5720 291	29 144 751	PRI022	2155 110	2 559	PUSHUP3	4356 45	1 44
POSTRUE	23,6472 308	1 317	PRI023	2156 110	1 602	PUSHUP	4354 45	2 42 45
PRAWAKE	21,6270 339	2 337 351	PRI024	2157 110	2 170 260	PUSHUPOK	4345 45	2 45

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PUTADD	07,6340	503	3	503	R2D1	3172	547	3	491 525	REDO5.10	33,6734	606	1	132
PUTCOM2	07,7053	516	4	515 517	R3D1	3173	547	4	492 502	REDO5.13	27,6011	698	1	132
PUTCOM	07,7000	515	8	512 513	R400K	26,7705	681	2	694 695	REDO5.20	05,7150	264	1	133
PUTDCSF2	07,7067	516	1	516	R+VSCALE	0026	296	1	316	REDO5.23	32,7551	585	2	133 586
PUTDECSF	07,7055	516	2	515 516	RANGER	31,7247	712	1	715	REDO5.24	26,7744	751	1	133
PUTDPCOM	07,7032	515	1	516	RAVEGON	1214	24	11	157 610	REDO5.2	32,7157	579	1	131
PUTINLST	07,7452	550	2	550	RCV	1130	23	6	298 327	REDO5.3	32,7276	581	2	131 581
PUTNORM	07,7043	516	1	515	RDOT	1346	29	14	700 725	REDO5.5	33,6014	590	1	132
PUTPOSX	34,6444	433	2	393 400	RDOTREF	1625	32	4	717 718	REDO5.7	33,6676	605	1	132
PUTSFNOR	07,7066	516	1	516	RE3.21	21,6301	339	1	339	REDO	05,6760	257	1	257
PUTXY	07,6630	512	-	-	RE5.23	32,7321	581	1	586	REDOCNTR	1075	22	4	140 158
PUTXYZ	07,6577	512	-	-	RE	25,7162	647	-	-	REDOSPS1	1724	33	1	621
Q2	30,7073	736	1	712	READACCS	32,7152	579	6	338 697	REDOTIME	1076	22	1	149
Q2ROOT	31,6177	687	2	686	READLOOP	14,6570	208	1	208	REENTABS	05,6342	245	1	245
Q3	30,7075	736	1	712	READMASK	4504	580	-	-	REENTK2	05,6330	245	2	245
Q5	30,7077	736	1	713	READPIPS	30,6345	379	1	456	REFAZE10	27,6174	702	2	133 705
Q6	30,7101	736	1	713	READTIME	2676	191	12	138 741	REFAZE4	27,6052	699	1	133
Q7	1326	28	9	709 721	RECALL	06,7606	536	2	536	REFAZE6	30,7620	748	5	131 748
Q7F	30,7103	736	1	709	RECALL2	06,7617	536	2	537	REFAZE8	27,6057	699	1	133
Q7MIN	30,7237	738	1	718	RECALL3	06,7624	537	1	536	REFRCV	1015	22	1	22
Q	0001	12	328	35 757	RECALL	0116	136	6	135 138	REFRRECT	0765	22	2	22
QADRS	0115	34	8	265 284	RECALLTST	06,7600	536	2	514 530	REFSMMAT	1051	22	17	327 753
QENDTEST	13,7307	756	-	-	RECOARSD	14,6114	195	1	196	REFSWTCH	1723	33	1	684
QPLAC	1310	26	6	411 415	RECONCIL	10,7174	181	1	182	REFTC	1031	22	2	22
QPLACE	1225	26	17	257 420	RECONLUP	10,7243	182	1	181	REFVCV	1023	22	3	22
QPRET	0052	13	10	69 211	RECONTRK	10,7057	179	1	186	REFVRECT	0773	22	2	22
QRUPT	0027	12	7	35 119	RECTIFY	23,7143	319	2	317 329	REFXKEP	1035	22	1	22
QTSK10	13,7344	758	1	756	RED03.13	33,7330	619	1	127	REGDIFF	10,6515	171	1	171
QTSK2	13,7332	758	1	754	RED03.20	21,6216	337	1	127	REGRUPT	2642	159	2	159
QTSK3	13,7333	758	1	755	RED03.21	21,6266	339	2	127	REGSLEEP	14,7531	228	2	228
QTSK4	13,7334	758	2	755 758	RED03.3	32,6771	572	1	126	REGSTEP	32,7301	581	3	751 752
QTSK4DEL	13,7345	758	1	758	RED04.10	32,7045	573	1	129	RE-ENTER	4703	52	25	70 728
QTSK6	13,7340	758	1	756	RED04.13	32,6761	572	1	129	REJECT2	14,6616	209	1	209
QTSK6DEL	13,7346	758	1	758	RED04.14	32,7062	573	1	129	REJECT3	14,6627	209	1	209
QTSK7	13,7342	758	1	756	RED04.16	32,6440	564	1	129	RELAYOFF	3405	624	15	259 721
QTSK8	13,7343	758	1	756	RED04.1	33,6202	593	1	128	RELAYON	3373	624	14	259 721
QTSKLOOP	13,7277	756	1	756	RED04.21	32,6423	564	2	130 571	RELDSP1	3356	551	2	521 537
QTSN45	22,7167	476	1	463	RED04.22	32,6654	569	1	130	RELDSP2	3351	551	4	551
QUARTER	4502	48	6	82 398	RED04.29	24,6263	610	1	131	RELDSP	3323	551	5	499 530
R1D1	3171	547	9	491 532	RED04.31	32,6062	554	1	131	RELDSPON	3250	548	4	523 727
R280K	26,7703	680	1	684	RED04.32	32,6054	554	1	131	RELINT	0016	12	5	270 277
					RED04.3	32,7022	573	1	128	RELO/IK	05,6444	250	1	235
					RED04.9	24,6322	611	1	129	RELRET	0113	15	3	551

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RELTAB11	2665 159	3 172	RESULTCT	1224 26	16 26 455 =	RTEAST	1122 25	2 654 =
RELTAB	2652 159	4 173 525	RESULTS	34,7207 448	2 405 420 =	RTERM	0016 684	2 684 685 =
RELTEST	4517 48	3 40 44	RESUME	2264 119	9 154 479 =	RTINIT	1114 25	8 555 745 =
RELTOVAC	4361 45	3 43 44	RETAA	1573 27	16 412 455 =	RTNORM	1130 25	2 654 =
RELVELSW	0007 18	3 700 704 =	RETADR	12,7472 420	1 420	RTPACIF1	1631 28	1 555 =
REMKDSP	14,6653 210	1 210	RETB	1574 27	2 411 =	RTPACIFC	1540 28	2 555 582 =
REMKVB51	14,6755 212	2 209 249	RETHERE	12,7501 420	1 420	RTRNSLUN	1322 27	2 650 =
REPCADR	12,7466 419	2 419	RETPLS	12,7473 420	1 419	RUN	1312 26	5 426 428 =
REPEAT1	25,6042 628	1 629	RETRN	03,6416 77	1 77	RUPTAGN	0571 16	6 16 119
REPEAT2	33,6307 595	1 595	REZFINE	14,6056 194	1 194	RUPTCHK	11,6325 270	2 270
REPEAT	12,7451 419	1 420	RIGHT5	3174 547	5 514 533	RUPTREG1	0637 17	19 17 292
REPIP1	30,7324 741	1 743	RIG-4SEC	1230 24	2 330 606 =	RUPTREG2	0640 17	24 17 292
REPIP1B	30,7335 741	1 743	RIGNTION	1100 23	2 329 607 =	RUPTREG3	0641 17	11 207 292
REPIP21	21,6265 338	1 338	RINTALT	25,7130 647	4 641 643	RUPTREG4	0642 17	8 120 477
REPIP2	30,7337 741	1 743	RMAG	1023 22	12 640 748 =	RUPTSTOR	0572 16	41 138 741 =
REPIP2B	30,7343 741	1 743	RMAGSQ	1025 22	4 640 749 =	RVH	25,7164 647	1 645
REPIP3	30,7345 741	1 743	RN1	1277 26	3 747 751 =	RVTOAVE	30,6153 329	2 329 330
REPIP3B	30,7351 741	1 743	RN	0765 22	28 158 748 =	RVTOMID	30,6051 327	1 327
REPIP4	30,7353 741	3 743	ROLL	1314 31	1 542 =	=====		
REPIPASR	30,7364 743	3 338 698	ROLLBIAS	1352 29	5 727 744 =	S1	0050 13	21 309 677 =
REPIPCAD	32,7255 580	1 580	ROLLC	1472 28	5 620 739 =	S2	0051 13	29 311 747 =
REPIPUP	27,6001 698	7 132 133	ROLLCTEM	0016 740	3 729 739 =	S2SWITCH	1722 33	1 584
REPL11	21,6142 335	1 127	ROLLDTH	1614 31	- - - =	S4BSCAN	10,6463 170	6 168 171
REPL12	21,6151 335	1 127	ROLLER	32,6154 557	- - - =	S4BSMFLG	0030 18	- - - =
REPMAL	12,7467 419	1 419	ROLLEXIT	33,6357 596	1 596	S4BSMSEP	32,6336 563	3 170 697
REPRELAL	21,6262 338	2 127	ROLLFLAG	0044 18	3 601 673 =	S	1432 28	3 650 651 =
REQADD	07,6067 498	1 498	ROLLJOB	33,6322 596	1 569	SAC	1520 30	2 473 475 =
REQCOM	07,6307 502	2 502	ROLLTASK	32,6645 569	4 568 569	SALLOW	11,7076 278	1 278
REQDATX	07,6274 502	3 512 513	ROLLTEST	26,7237 673	2 659 673	SAMPTIME	0643 17	4 191 546
REQDATY	07,6300 502	3 512 513	ROOT 2/4	12,7754 425	3 423	SAVE	1562 27	3 395 396 =
REQDATZ	07,6304 502	3 498 513	ROPECHK	11,6646 275	2 274 278	SBITMASK	03,7210 91	1 78
REQEX1	07,7331 529	1 529	ROTLMV	1202 24	- - - =	SBUSY	11,7100 278	1 278
REQEXLOC	07,6170 499	- - -	ROTX	21,7105 354	1 355	SCADR	11,6010 265	1 278
REQMM	07,7306 529	1 528	ROUND	5444 64	2 63	SCALDEL	1311 25	2 308 326 =
REQRET	0613 17	14 148 535	RPIP	0765 22	- - - =	SCALEA	1306 25	2 308 310 =
REREADAC	32,7226 580	8 131 133	RRECCMEM	1655 33	4 606 610 =	SCALEB	1307 25	4 308 311 =
RESET1	32,6325 560	3 559 560	RRECT	1100 23	20 158 610 =	SCALED	1310 25	1 326 =
RESETM	22,6250 371	1 371	RSCALE	0020 296	15 308 610 =	SCALEPop	27,6060 700	- - -
RESETO	22,6243 371	1 371	RSTFAIL2	04,7175 146	2 144 146	SCALER	1312 25	2 308 326 =
RESTARTS	13,6563 135	5 150	RT	1214 25	4 654 745 =	SCALFTR	34,7734 458	1 438
RESTORE1	12,6676 404	8 403	RTARG	1432 27	3 643 644 =	SCCHK	11,6155 267	- - -
RESTORE	12,6700 404	2 404	RTATLAN1	1621 28	1 555 =	SCLRVMID	25,7521 656	1 327
RESTORSR	04,7466 479	2 478 479	RTATLANT	1530 28	4 555 643 =	SCLRMDAV	25,7523 656	3 329 330

KEY: SYMBOLS DEFINED BY EQUALS ARE FLAGGED =. OTHERS ARE NORMALLY DEFINED EXCEPT THOSE FLAGGED:

U UNDEFINED	E FAILED LEFTOVER ERASE	M MULTIPLY DEFINED	T WRONG MEMORY TYPE	MM MULTIPLE ERRORS
N NEARLY DEFINED BY =	J FAILED LEFTOVER WORD	O OVERSIZE- OR ILL-DEFINED	C CONFLICT IN MEMORY	X MISC. TROUBLE

SYMBOL TABLE LISTING, INCLUDING PAGE NUMBER OF DEFINITION, AND NUMBER OF REFERENCES WITH FIRST AND LAST PAGE NUMBERS

SYMBOL	H	DEFINITION	REFERENCES	F	■	SYMBOL	H	DEFINITION	REFERENCES	F	■	SYMBOL	H	DEFINITION	REFERENCES	F	■					
SCLTAVMD	25,7525	656	-	-	-	■	SETGPAST	27,6675	725	1	723	■	SFTEMP1	0110	15	21	501	541	=			
SCLVAVMD	25,7527	656	-	-	-	■	SETHETAD	3516	625	4	554	613	■	SFTEMP2	0111	15	16	505	541	=		
SCLVMDAV	25,7531	656	-	-	-	■	SETKANDC	14,6245	200	12	193	199	■	SFTSTIN	12,6513	400	1	402				
SCNBAZ	34,7670	458	1	446		■	SETLIFT	32,6022	553	2	553		■	SGFORCE	03,7175	91	1	90				
SCNBMAT	26,7606	679	2	333		■	SETMANU	33,6543	602	1	602		■	SGN=0	03,7165	90	1	90				
SCNBVER	34,7710	458	1	446		■	SETMIND	30,7023	704	1	701		■	SGN=+	03,7172	90	1	90				
SCONO	5501	265	6	270	277	=	■	SETMM23	24,6316	611	1	611		■	SGNAGREE	30,6403	380	8	328	556		
SCON1	4516	265	17	265	282	=	■	SETMOD23	32,7070	574	3	126	573	■	SGNATAN	0072	690	7	687	691	=	
SCON1/2	4501	265	2	267	281	=	■	SETMULTF	3054	295	1	295		■	SGNCOM	06,6332	491	1	491			
SCON1/4	4502	265	2	269	280	=	■	SETNJ	04,6245	105	1	108		■	SGNDMAX	0101	15	5	90	91	=	
SCON2	4515	265	7	266	276	=	■	SETNORM	03,7336	94	2	94	95	■	SGNOFF	0110	15	3	491		=	
SCON3/8	11,6557	273	4	269	281		■	SETOUT2	10,6647	175	1	174		■	SGNON	0064	14	3	491		=	
SCON4	4514	265	1	268		=	■	SETPD16	26,7636	679	4	680		■	SGNTAB	06,6354	491	2	491			
SCON64	4510	265	1	267		=	■	SETPD18	26,7644	680	2	660	663	■	SGNTHETA	1424	27	1	651		=	
SCON+MAX	4476	265	20	268	281	=	■	SETPD20	26,7650	680	2	662	669	■	SGNTO1	06,7116	517	1	517			
SCON-1	4335	265	3	273	280	=	■	SETPD28	26,7646	680	1	667		■	SGNST1	06,6374	492	3	491	492		
SCON-2	4340	265	2	268		=	■	SETPD6	26,7642	680	1	666		■	SHIFTL	03,6402	77	1	46			
SCON-3/8	11,6560	273	4	269	280		■	SETPOS	30,6621	386	2	386		■	SHIFTR1	5075	56	3	46	71		
SCONMAX	5504	265	3	271	273	=	■	SETS4SEP	32,6363	563	2	129	563	■	SHIFTR	03,6233	74	3	56	97		
SCONSU	11,6421	271	1	269			■	SETSEP	33,7211	616	1	614		■	SHINDIRT	13,6720	138	1	138			
SCONTS	11,6376	271	1	270			■	SETTGO	33,6172	592	1	591		■	SHORTMP2	5422	64	1	382			
SCOUNT	1766	34	8	271	282	=	■	SETJMB2	32,6462	565	1	563		■	SHORTMP	5416	64	10	74	687		
SCOUTEND	06,6750	510	4	509	510		■	SETJPENT	32,7212	579	1	579		■	SHOTIME	3372	552	1	552			
SCRINTP	34,7532	455	1	420			■	SETJPSOK	32,7216	580	1	579		■	SHOW1	12,7207	412	1	412			
SCRTEST	12,7416	419	1	406			■	SETJP SUB	10,7704	234	4	229	231	■	SHOW	12,7205	412	4	400	453		
SCTMARK	14,6406	210	-	-	-	=	■	SETVAC	07,7340	529	1	529		■	SHOWLD	12,7226	412	2	400	412		
SDISPLAY	11,7037	278	2	265	276		■	SETWARN	26,6367	663	-	-	-	■	SHOWSUM	11,7025	277	2	257	277		
SELFERAS	1760	34	-	-	-		■	SETWINT	23,7330	322	1	322		■	SHTDNFLG	0024	18	1	599		=	
SEMILAT	1552	28	3	640		=	■	SETZLIT	2743	192	5	179	195	■	SHTDNMSK	4503	570	-	-	-	=	
SEPMANU	33,7224	617	1	616			■	SEVEN	5362	62	16	95	756	■	SHTFLGUP	32,7546	585	1	585			
SEQ	5500	65	4	66			■	SEVENTN	3541	626	1	623		■	SHUTASK	33,7205	615	1	615			
SEQUENCE	27,6177	703	-	-	-		■	SFAIL	1764	34	5	141	493	=	■	SHUTDOWN	33,7037	613	3	585	589	
SERVICER	32,7262	581	1	579			■	SFCALC	34,7213	448	-	-	-	■	SHUTDOWN1	32,7541	585	1	585			
SET15D	26,6340	662	1	662			■	SFCONUM	07,6756	514	2	507	516	■	SHUTDOWN3	32,7717	589	2	588	593		
SET2.55	32,7234	580	1	580			■	SFINTAB1	05,7431	544	1	541		■	SHUTDOWN4	32,7735	589	1	589			
SET32	32,7477	584	2	584			■	SFINTAB2	05,7446	544	1	541		■	SHUTJOB1	33,7126	614	2	614	616		
SETABORT	32,6427	564	1	564			■	SFINTABR	07,7072	516	1	516		■	SHUTJOB	33,7060	613	1	126			
SETATTC	33,7215	616	1	614			■	SFOJTAB1	05,7463	544	1	541		■	SIDEDAYS	21,7020	351	-	-	-		
SETAUG	06,6700	509	1	508			■	SFOJTAB2	05,7500	545	1	541		■	SIGN	03,6213	73	1	46			
SETBRNSW	3504	625	12	564	621		■	SFOJTABR	07,6554	507	1	507		■	SIGNFIX	06,7100	517	2	517			
SETC	10,7203	181	2	181	185		■	SFRET	07,6771	515	1	515		■	SIGNMPAC	30,6606	386	3	719	744		
SETCOARS	10,7141	181	1	182			■	SFRJTMIX	07,6746	514	3	507	516	■	SIGNRET	0073	14	5	491	492	=	
SETDTH	33,6520	601	2	601			■	SFRJTNOR	07,6740	514	4	506	516	■	SIGNTEST	06,6357	491	2	490	491		

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SYMBOL TABLE LISTING, INCLUDING PAGE NUMBER OF DEFINITION, AND NUMBER OF REFERENCES WITH FIRST AND LAST PAGE NUMBERS

SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F
SIN1	03,6620 81	1 47	SMOOTHER	27,7176 731	1 731	SPS3TEST	32,7050 573	1 573
SIN30	26,7564 679	- - - =	SMDVE	03,6336 76	1 47	SPS4FLAG	0051 19	- - - =
SIN33	25,6236 634	5 596 634	SN1	03,6570 81	1 80	SPS4MASK	32,7066 573	- - - =
SIN60	33,7254 617	1 617	SNAPOUT	33,6430 598	1 601	SPTEM1	0072 690	1 690 =
SINAZ	0002 332	5 339 346 =	SOAKEXIT	33,7030 608	1 606	SPTEM2	0073 690	3 690 691 =
SINBLANK	06,6612 495	1 495	SOAKFLAG	0023 18	- - - =	SPTEMQ	0071 690	1 690 =
SINCDU	1330 27	18 561 637 =	SOAKINIT	33,6621 604	2 125 576	SPTW	14,7407 225	1 225
SINCOS	25,6040 628	2 561 604	SOAKJOB	33,6713 606	2 132 605	SQRT2	03,7320 94	2 83 97
SINDIR	13,6664 137	1 135	SOAKTASK	33,6657 605	1 580	SQRT3	03,7322 94	3 75 687
SINE	03,6542 80	2 80 81	SOAKTSK1	33,6666 605	4 132 605	SQRTDIV	03,7033 87	1 96
SINLAM	0042 332	2 339 344 =	SOMESUN	26,6510 665	1 665	SQRTMU/R	25,7200 648	1 648
SINTH	0022 476	11 461 475 =	SOPTION1	11,6410 271	1 271	SQRTNORM	03,7361 95	2 94 96
SITENUMB	1300 24	- - - =	SOPTION2	11,6610 274	- - -	SQRTS	03,7453 97	1 47
SIX	4475 48	23 61 680 =	SOPTION3	11,7372 282	2 278 282	SQUARE	03,6323 76	1 47
SIXHNDRD	3571 627	1 334 =	SOPTION	11,6743 276	1 276	SR14	03,6251 74	2 74
SIXTN	3540 626	1 679	SPARCTAN	31,6323 690	1 687	SR1	03,7301 93	3 75
SIXTY	3563 626	1 626	SPATAN1	31,6355 690	1 690	SR	0021 12	31 43 691 =
SIZETAB	13,6555 134	1 135	SPATAN2	31,6367 691	1 690	SRGHT5	04,7472 479	2 478
SKEEP1	1771 34	57 265 281 =	SPATAN3	31,6371 691	1 691	SRRUPT	0574 16	- - - =
SKEEP2	1772 34	26 267 281 =	SPATAN4	31,6434 691	2 690	SRTEST	03,7346 94	1 94
SKEEP3	1773 34	20 267 281 =	SPATAN5	31,6401 691	1 691	SSM	03,6312 75	- - -
SKEEP4	1774 34	21 267 282 =	SPATANQ	0071 690	4 690 691 =	SSP	03,6316 75	1 47
SKEEP5	1775 34	22 267 282 =	SPGYREX	14,7372 224	1 225	SSTORE	03,6064 71	- - -
SKEEP6	1776 34	7 267 276 =	SPITGYRO	21,6442 341	2 341 353	STAR	1416 30	3 473 475 =
SKEEP7	1777 34	13 272 282 =	SPLIT1	26,7501 677	1 677	STARAD	1402 30	32 359 472 =
SL1	03,6364 77	11 77 519	SPLIT2	26,7444 677	1 677	STARM	0040 476	9 359 470 =
SL	0023 12	4 41 274 =	SPLIT3	26,7457 677	2 677	STARMEAS	1166 24	- - - =
SLAP1	04,6705 140	1 99	SPLIT4	26,7471 677	1 677	STARNUMB	0621 27	- - - =
SLAP2	04,6713 140	1 141	SPLIT5	26,7506 677	2 677	STARS	1400 30	12 358 392 =
SLAPB	04,6000 99	1 500	SPLITMNU	26,7433 676	1 670	START2	33,7442 697	1 697
SLCANS	03,6430 77	2 77	SPNT	14,7352 224	1 224	STARTCHK	10,7233 182	1 182
SLEFT5	3212 547	1 526	SPS1FLAG	0054 19	- - - =	STARTCRS	14,6126 195	- - -
SLOPEHI	03,7403 96	1 96	SPS1LOC	32,6426 564	2 564 571	STARTDT1	33,7440 697	1 697
SLOPELO	03,7401 96	1 96	SPS1MASK	32,6416 564	2 572 589	STARTDT2	33,7441 697	1 697
SMA	1436 28	4 651 =	SPS1TEST	32,6774 572	2 131 571	STARTENT	30,7430 744	1 582
SMACHECK	25,7114 646	1 642	SPS2FLAG	0053 19	3 595 652 =	STARTPL2	21,6147 335	1 349
SMCDURES	25,6242 635	1 638	SPS2MASK	32,7023 573	1 573	STARTPL	21,6702 349	- - -
SMDCALC	34,6461 433	1 393	SPS2MODE	33,6377 597	1 596	STARTSUB	04,7200 147	3 140 145
SMNB1	22,6502 464	1 464	SPS2NOW	32,7432 583	1 583	STARTSW	04,6764 141	1 141
SMNB	22,6474 464	1 473	SPS2TEST	32,7025 573	- - -	STATE	0645 18	37 18 744
SMDVE	1762 34	8 140 541 =	SPS34MSK	32,6707 570	1 568	STATEDWN	3474 625	4 583 622
SMDVECHK	3000 284	11 265 284	SPS3FLAG	0052 19	- - - =	STATENV7	13,7201 264	1 261
SMDVECON	11,7420 284	1 284	SPS3MASK	32,7046 573	1 573	STATENV	05,7144 264	1 258

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U UNDEFINED E FAILED LEFTOVER ERASE M MULTIPLY DEFINED T WRONG MEMORY TYPE MM MULTIPLE ERRORS
N NEARLY DEFINED BY = J FAILED LEFTOVER WORD O OVERSIZE- OR ILL-DEFINED C CONFLICT IN MEMORY X MISC. TROUBLE

SYMBOL TABLE LISTING, INCLUDING PAGE NUMBER OF DEFINITION, AND NUMBER OF REFERENCES WITH FIRST AND LAST PAGE NUMBERS

SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F
STATEUP	3462 625	4 565 716	SWAYROTZ	22,6017 366	2 366 368	TATLAN1	1617 28	1 554 =
STB	5466 65	4 63 66	SWAYSTAT	22,6000 366	- - -	TATLANT	1526 28	1 554 =
STBNKCON	11,6766 277	1 275	SWCALL	5662 290	12 73 533	TAU	1260 24	1 296 =
STBUFF	1100 25	28 157 753 =	SWCON	11,6772 277	1 276	TAVEGON	1210 24	5 157 609 =
STCNTR	1123 23	3 157 261 =	SWF/F	4574 50	1 78	TAZ	1346 30	5 358 392 =
STEER2	27,7006 727	- - -	SWINIT	04,7360 150	3 141	TBASE2	0664 19	1 136
STEER	27,7005 727	1 723	SWITCHEM	03,6434 78	1 47	TBASE3	0665 19	5 337 614
STEERFLG	0034 18	1 593 =	SWITCHIT	03,6464 78	1 78	TBASE4	0666 19	9 553 621
STEERLAW	33,6071 591	2 591	SWLODIND	03,6362 76	1 76	TBASE5	0667 19	8 337 698
STEERMSK	32,6634 569	1 569	SWRETURN	5702 290	8 123 613	TC	1144 23	5 296 326 =
STEEROFF	32,6633 569	1 130	SWSGN	06,7545 531	1 532	TCA1	4533 49	1 42
STEERROR	1344 27	2 591 592 =	SWTAB	06,7574 532	4 531 536	TCBUF	4731 53	4 58 65
STEPEXIT	1304 25	2 321 326 =	SXA	03,6110 71	2 47 73	TCEX	03,6753 85	1 82 =
STEVEIN	12,6540 400	2 395 398	SXTALARM	22,7163 475	2 475	TCFINDVC	3226 547	2 138 529
STOPHOR1	12,7061 408	4 407 408	SXTANG	22,7116 475	- - -	TCNOVAC	3223 547	1 529
STOPHOR	34,7515 454	2 394 408	SXTMARK	14,6406 204	4 210 430	TCOAST	1556 28	5 128 609 =
STOR1	4701 52	2 71 72 =	SXTNB	22,6732 470	6 359 432	TCS1	4524 49	4 56 81
STORADR	4044 38	1 52	SXTTR	12,7747 425	2 408	TCSUBTR	03,6754 85	1 84
STORDAC	5347 62	4 61 75	SYSFAIL	10,7324 183	2 183	TCSWRET	13,6707 138	2 137 138
STORE3	4552 49	1 49	SYSTEST	05,6752 257	1 235	TCTAG+1	03,6753 85	2 82 85
STOREPL	1230 26	20 394 457 =	S(X)C(X)	23,6311 304	1 300	TCTSKOVR	3225 547	1 755
STORRSLT	34,6660 438	3 394	=====			TCURRENT	13,6607 135	1 135
STORTEST	5473 65	1 44 =	T3DSP	2233 119	2 119	TCUTOFF	1462 28	9 138 609 =
STR4OUT	32,6660 569	1 569	T3RJPT2	2203 118	1 119	TCWAIT	3224 547	2 135 530
STREXIT	33,6133 592	1 593	T3RJPT	2177 118	1 35	TDEC	1266 24	8 327 546 =
STRTEST	33,6002 589	1 588	T4RJPT	2630 159	1 35	TDECAY	1560 28	1 593 =
STUFMODE	13,6766 261	1 262	T4RJPTA	10,6115 161	2 159	TDELTAV	1114 23	3 319 326 =
STZ1	4700 52	2 46 52	TABLNTH	10,6602 172	1 173	TE	1033 22	2 22
SUBETA2	30,7015 704	1 704	TABTFLAG	0055 19	1 599 =	TEL	1350 30	5 358 392 =
SUBETA	30,7007 704	1 704	TABTMASK	32,6772 572	1 587	TELCOUNT	0670 19	4 149 176
SUBTR	03,6745 85	1 85	TAG1	0075 14	10 43 72 =	TEM10	0107 15	16 15 222
SUCHK	11,6240 269	- - -	TAG	4722 53	12 43 72	TEM11	0064 14	17 14 228
SUMADRS	11,6006 265	1 278	TAGIT	03,6727 84	1 85	TEM1B	1420 29	9 708 724 =
SUMPOINT	33,6125 592	1 591	TANCHECK	25,7124 647	1 643	TEM2	0102 15	56 15 376
SUMSUM1	34,7574 455	1 455	TARIPOS	1100 26	4 432 435 =	TEM3	0101 15	2 96 =
SUMSUM	12,7456 419	1 455	TARGET1	1402 30	8 30 435 =	TEM4	0103 15	25 15 81
SVCT3	04,6003 99	1 119	TARGET	24,6037 555	- - -	TEM5	0104 15	18 15 78
SVCT3X	04,6525 114	1 99	TARGJOB	24,6000 554	1 554	TEM6	0105 15	2 66 =
SWADDR	4272 44	1 43	TARGSM	34,6552 435	1 392	TEM8	0105 15	19 15 81
SWADRS	11,6703 275	1 276	TARGETASK	32,6025 553	3 129 554	TEM9	0106 15	15 15 222
SWAPLOC	30,6563 385	4 382 383	TASK3OUT	32,6331 560	4 560 575	TEMDELV	1572 27	4 427 428 =
SWAYPULS	1102 369	5 366 367 =	TASK4OUT	32,6556 568	1 569	TEMDET	0117 136	4 136 138 =
SWAYROTY	22,6024 366	3 366 367	TASKOVER	2256 119	103 114 758	TEMQ2	0104 15	7 90 97 =

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U UNDEFINED

E FAILED LEFTOVER ERASE

M MULTIPLY DEFINED

T WRONG MEMORY TYPE

MM MULTIPLE ERRORS

N NEARLY DEFINED BY =

J FAILED LEFTOVER WORD

O OVERSIZE- OR ILL-DEFINED

C CONFLICT IN MEMORY

X MISC. TROUBLE

SYMBOL TABLE LISTING, INCLUDING PAGE NUMBER OF DEFINITION, AND NUMBER OF REFERENCES WITH FIRST AND LAST PAGE NUMBERS

SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F
TEMQ3		0076 14	4 58 92	=	THETAD		0700 19	34 158 729	=	TMMARKER		0675 19	10 149 748	
TEMQ		0103 15	3 90 91	=	THETA E		1456 30	4 339 347	=	TMONITOR		1570 31	4 556	=
TEMQS		0071 14	17 202 535	=	THETAH		1110 25	8 546 745	=	TMOVE		03,7463 97	1 47	
TEMX		1031 22	3 741 743	=	THETAMAN		1454 28	26 602 680	=	TNUV		1122 23	6 23 326	=
TEMXY		1034 22	6 741 743	=	THETASTH		1454 30	5 339 344	=	TOP1		21,6000 332	4 124 349	
TEMY		1032 22	3 741 743	=	THETAX		1452 30	6 340 353	=	TOP2		21,6100 334	1 349	
TEMZ		1033 22	3 741 743	=	THETAY		1446 30	15 334 356	=	TOP33		21,6060 333	1 333	
TEN		3232 548	10 148 613	=	THETAZ		1450 30	4 341 353	=	TOP3		21,6036 333	- - -	
TENDPTCH		1566 31	2 556	=	THETRIG		25,6012 628	3 596 657	=	TORK		12,6245 395	1 401	
TENGON		1462 28	2 568	=	THIRD		22,7171 476	- - -	=	TORQGYRS		05,6454 251	1 235	
TENMS		11,6333 270	1 270	=	THIRTEEN		3535 626	5 356 572	=	TORQGYRV		05,6501 251	1 251	
TENTRY		1350 29	3 699 744	=	THIRTN		3535 626	2 626 698	=	TPACIF1		1627 28	1 554	=
TERMEXTV		05,6064 236	9 240 251	=	THIRTY1		3557 626	1 553	=	TPACIFC		1536 28	2 554 582	=
TEST2		4300 44	1 44	=	THIRTY2		3560 626	1 553	=	TPAD		33,6555 602	1 602	
TESTCADR		05,7002 257	1 257	=	THIRTY		3556 626	3 584 626	=	TPAGREE		03,7154 90	10 82 511	
TESTDEN		31,6341 690	4 690	=	THREE		4473 48	24 44 622	=	TPERIOD		1110 369	1 367	=
TESTGMP		33,7116 614	1 614	=	THREE/8		23,6301 303	2 303 311	=	TPITCH		1564 31	1 556	=
TESTHSW		31,7066 709	1 709	=	TIMCALC		22,6065 367	3 367	=	TPLEFT7		06,7213 519	2 510 519	
TESTMORE		13,7143 263	1 262	=	TIME1		0036 12	30 136 697	=	TPSET		4761 53	2 54	
TESTNDX		1232 26	19 400 456	=	TIME1GR		1467 30	3 157 337	=	TpTIME		12,7277 415	2 394 403	
TESTNN		07,6046 498	2 497 523	=	TIME1SAV		1101 23	2 253 256	=	TRACE1		06,7272 524	- - -	
TESTNO		1561 27	9 395 396	=	TIME2		0035 12	16 156 554	=	TRACE1S		06,7303 524	- - -	
TESTNV		05,7012 257	1 257	=	TIME2GR		1466 30	4 157 554	=	TRAD		4776 54	4 46 60	
TESTOFUF		06,7235 519	4 517 523	=	TIME2SAV		1100 23	2 253 256	=	TRANSEAR		25,7214 649	- - -	
TESTTET		30,6067 328	3 326 330	=	TIME3		0037 12	9 111 755	=	TRANSLUN		25,7264 650	- - -	
TESTTFF		32,7463 584	- - -	=	TIME4		0040 12	4 147 173	=	TRESUME		1212 24	- - -	=
TESTTIME		1215 26	5 402 453	=	TIMEINCR		12,6367 397	1 396	=	TRIG1		22,6452 463	1 463	
TESTVB		07,6037 497	- - -	=	TIMESTEP		23,7107 317	2 328	=	TRIG2		22,6465 463	1 463	
TESTXACT		05,6047 236	8 239 251	=	TINYTHET		30,7030 704	1 702	=	TRNSWON		10,7217 182	1 180	
TET		1146 23	4 296 542	=	TIX		03,6115 72	1 47	=	TROLL		1562 31	3 125 557	=
TFF0		31,6664 696	1 695	=	TIXBR		03,6130 72	1 72	=	TRUE2		03,6042 71	4 56 79	
TFF2DOWN		24,6323 611	1 611	=	TJL		21,6457 343	2 340 349	=	TRUNLOG		30,6406 380	1 470	
TFF2FLAG		0003 18	1 584	=	TJLAL1		34,6720 441	1 441	=	TRYGRAB		32,6360 563	1 565	
TFF		1456 28	16 158 696	=	TJLAL		34,6714 441	1 456	=	TS+-CHK		11,6305 270	- - -	
TFFLIMIT		24,6355 612	1 610	=	TLIFTOFF		1462 28	4 553 554	=	TSCALE		0033 296	3 296 322	=
TFFMAX		31,6456 693	4 693 695	=	TMLWAIT		11,6001 265	1 270	=	TSELECT		05,6775 257	1 257	
TFFMIN		1676 33	3 263 584	=	TMALM		2571 479	1 479	=	TSGNABS		03,7143 90	3 80 86	
TFFNOM		1720 33	2 582 583	=	TMARK		1174 26	4 431 437	=	TSKADRS		11,6401 271	2 265 270	
TFFTEST1		32,7513 585	2 584	=	TMCHECK		10,6701 176	4 164	=	TSLC		03,6411 77	1 46	
TFFTEST		32,7453 584	1 582	=	TMFAIL1		04,7464 479	- - -	=	TSQ		4561 49	1 111	
TGOBIAS		25,7154 647	1 644	=	TMFAIL2		04,7457 479	2 479	=	TSTAB		06,6422 492	1 493	
THATSALL		04,6777 141	1 295	=	TMFAIL		2571 155	4 151 479	=	TSTDSPK		3274 548	2 522 550	
THETA		0024 476	5 463	=	TMINDEX		0674 19	11 151 154	=	TSTFORDP		07,6457 506	1 505	

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U UNDEFINED E FAILED LEFTOVER ERASE M MULTIPLY DEFINED T WRONG MEMORY TYPE MM MULTIPLE ERRORS
N NEARLY DEFINED BY = J FAILED LEFTOVER WORD O OVERSIZE- OR ILL-DEFINED C CONFLICT IN MEMORY X MISC. TROUBLE

SYMBOL TABLE LISTING, INCLUDING PAGE NUMBER OF DEFINITION, AND NUMBER OF REFERENCES WITH FIRST AND LAST PAGE NUMBERS

SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F
TSTIMACT	14,6757 213	3 196 199	UNITF	1366 27	2 649	UPTHETA3	27,7075 729	1 730
TSTJUMP	12,6721 406	1 457	UNITHORZ	1374 27	4 641 645	UPTHETA	27,7102 729	- - -
TSTOUT	11,7521 286	1 288	UNITLOOP	03,7222 92	1 92	UPTIME	1671 33	7 263 752
TSTUPLOK	04,7451 478	2 478	UNITMDT	1402 27	2 590 591	UPTSKLOC	24,6200 577	1 577
TSU1	4773 54	1 46	UNITN	1322 27	1 648	USEMAXDT	30,6131 328	1 328
TTS1	4552 49	1 46	UNITR	1015 22	29 640 749	UVL	1160 24	- - -
TTUMON	1572 31	2 125 558	UNITRSM	03,7216 92	1 93	UXNB	1476 31	1 739
TUMBFLAG	0037 18	- - -	UNITRUPT	03,7263 93	1 92	UYNB	1504 31	2 739 740
TUMBJOB1	32,6257 559	1 559	UNITRXV	1366 27	3 641 644	UZNB	1512 31	1 740
TUMBJOB	24,6046 561	1 559	UNITS	1374 27	2 650 651	=====		
TUMBTASK	32,6300 559	1 560	UNITV	1567 31	1 700	V01N30E	34,7731 458	2 430
TUMBTSK1	32,6250 559	3 126 558	UNITVG	1352 27	2 652	V05N30E	12,7740 425	2 392 409
TUMTEST1	32,6321 560	1 559	UNITW	1043 22	7 355 749	V06N30P	21,7540 364	2 358 359
TUMTEST2	32,6636 569	2 568 569	UNITX	26,7572 679	8 372 680	V06N40	33,6157 592	1 592
TURNONZ	2750 192	3 192	UNITY	26,7600 679	8 372 680	V06N62	27,7043 727	1 727
TWEAKGY	10,7555 231	2 231 232	UNP	1230 24	- - -	V06N66E	34,7730 458	1 428
TWEAKSP	10,7533 229	1 229	UPBANK	2075 479	1 36	V07N30E	12,7745 425	2 397 409
TWELVE	3534 626	2 558 618	UPCADR	27,6201 716	1 716	V1	1364 29	20 708 721
TWENTY0	3544 626	4 337 680	UPCONTRL	27,6216 717	1 716	V1OLD	1370 29	3 709 720
TWENTY1	3545 626	1 339	UPDAT1	07,6353 503	1 503	V1ST02S	30,6623 387	3 387 630
TWENTY2	3546 626	1 569	UPDATERT	27,6151 702	1 704	V21N24G	11,7723 289	1 289
TWENTY3	3547 626	1 569	UPDATFLG	0022 18	3 328 751	V21N30E	12,7742 425	2 392 395
TWENTY4	3550 626	2 567 568	UPDATIME	05,6511 252	2 256 263	V2STOD1S	30,6663 387	1 388
TWENTY5	3551 626	2 567 615	UPDATNN	07,6327 502	2 534	V37BAD	04,6703 124	5 124
TWENTY6	3552 626	- - -	UPDATRET	0063 14	5 497 536	V400	25,7152 647	1 642
TWENTY7	3553 626	2 559 611	UPDATVB	07,6346 503	9 494 535	V75TEMP	0616 17	3 258 260
TWENTY8	3554 626	3 535 680	UPDTDONE	13,7066 262	1 262	V	1617 31	17 546 723
TWENTY9	3555 626	- - -	UPDWTST	31,6742 707	1 706	VAC1	0217 16	- - -
TWENTY	3544 626	- - -	UPJOB	24,6225 609	2 129 609	VAC1ADRC	04,7356 150	1 148
TWO	5503 65	97 41 756	UPLAST	04,7515 479	- - -	VAC1USE	0216 16	4 99 204
TWOSEC	33,6253 594	1 593	UPLINK	0041 12	2 148 478	VAC2	0273 16	- - -
TWO(-2)	31,6673 696	10 694 695	UPLOCK	0645 18	5 478 479	VAC2USE	0272 16	3 99 204
=====			UPNOVER	27,7145 730	- - -	VAC3	0347 16	- - -
ULES	12,7441 419	1 419	UPOK	04,7436 478	- - -	VAC3USE	0346 16	3 99 204
ULRET	4174 41	1 42	UPOLDMD	1116 25	5 157 263	VAC4	0423 16	- - -
UNAJUMP	4453 47	1 39	UPRPT1	04,7421 478	1 478	VAC4USE	0422 16	3 99 204
UNALOAD	4152 41	1 39	UPRJPT	2037 36	1 35	VAC5	0477 16	- - -
UNAPROC	4104 39	1 41	UPRJPTB	04,7375 478	1 36	VAC5USE	0476 16	3 99 204
UNCOROVF	10,7417 188	1 188	UPT	2341 121	1 120	VAC	0040 13	30 13 592
UNE	1220 24	- - -	UPTASK	24,6201 609	2 129 577	VACADR	1302 26	3 430 431
UNI	1561 31	3 701 723	UPTCADR	04,6652 123	1 121	VACCOM	5202 59	2 59 76
UNIT	03,7212 92	1 47	UPTTEST	04,7501 479	2 478	VACLOC	0070 14	29 50 387
UNITD	1366 27	2 650 651	UPTHETA1	27,7101 729	3 130 744	VACX	0040 13	3 383 666

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SYMBOL TABLE LISTING, INCLUDING PAGE NUMBER OF DEFINITION, AND NUMBER OF REFERENCES WITH FIRST AND LAST PAGE NUMBERS

SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F	SYMBOL H	DEFINITION	REFERENCES F
VACY	0042 13	- - - =	VERECTC3	21,6764 351	2 343	VSLTEST	03,6513 79	1 79
VACZ	0044 13	4 383 666 =	VERIFLAG	0012 18	- - - =	VSLTLOOP	03,6502 79	1 79
VAD1	5221 59	3 46 59	VERTRECT	34,6777 443	1 456	VSQ	03,6226 74	1 47
VARIANCE	1274 24	- - - =	VF	1322 27	1 649	VSQUARE	1342 29	6 700 726 =
VAVEGON	1222 24	12 157 610 =	VFALARM	30,7227 738	2 706 707	VSR1	03,6275 75	2 75 92
VAZ	1352 30	3 332 333 =	VG	1352 27	8 590 652 =	VSRT1	5633 69	2 46 71
VB06N66	12,7751 425	1 412	VGALARM	33,6234 593	1 590	VSRT3	5650 69	2 69
VB50	14,6746 212	2 212	VGCNT1	1261 26	2 581 586 =	VSU1	5211 59	1 46
VB51	14,6753 212	2 211 212	VGCNTR	1446 28	18 564 621 =	VTS1	4622 50	1 46
VBARS	1603 31	7 710 715 =	VIGNTION	1106 23	3 587 640 =	VXM1	5306 61	1 46
VBCOARK	05,6102 237	1 235	VL	1615 31	13 710 722 =	VXSC1	5357 62	1 46
VBFANDIR	07,6145 499	1 499	VLTEST	27,6523 722	1 717	VXSC2	5372 63	2 62 65
VBPROC	06,7465 530	2 499 530	VMARK	1176 26	3 436 460 =	W	1561 31	4 321 =
VBRELDSP	06,7475 530	2 486 500	VMIN	30,7105 736	1 710	WAIT1	11,6356 270	1 271
VBRQEXEC	07,7321 529	1 499	VMODE	30,6373 379	1 381	WAITFLAG	5501 184	1 183 =
VBRQWAIT	07,7342 530	1 499	VMOVE	4024 97	1 47	WAITLIST	2173 111	128 116 756
VBSP1LD	07,6715 514	2 512	VN1	1305 26	2 747 751 =	WAKE	12,6316 396	1 397
VBSP2LD	07,6716 514	2 512	VN	0773 22	30 157 747 =	WAKECADR	12,6371 397	2 396
VBSP3LD	07,6717 514	1 512	VNCON	11,6007 265	1 278	WAKEPRAD	21,7003 351	- - -
VBTERM	06,7472 530	2 500 535	VNLDOCDU	05,6406 248	1 248	WAKEUP	12,6313 396	1 396
VBUF	0071 14	41 14 690	VNLDDCDU	05,6165 240	3 240 245	WART2ADR	34,7630 456	2 456
VBZERO	05,6077 236	1 235	VNLDDDT	05,6544 252	1 252	WART2NEW	34,7634 456	1 456
VCA1	4611 50	4 42 62	VNLDDGYR	05,6251 242	2 242 251	WARTMAL2	12,7377 417	1 399
VCORLIM	30,7117 737	2 714 737	VPIP	0773 22	1 700	WARTMAL3	12,7403 417	1 417
VCORR	1577 31	9 713 714 =	VPROJ1	5505 65	1 46	WARTMAL4	12,7361 417	2 417
VCRIT	25,7156 647	1 642	VQUIT	30,7117 737	1 723	WARTMAL	12,7355 417	1 399
VCS1	4616 50	2 59 66	VR1	1263 26	2 581 585 =	WARTNEW1	34,7631 456	1 456
VCV	1136 23	4 298 319 =	VR	1416 27	8 581 651 =	WARTNEW	34,7620 456	1 456
VD1	3227 547	6 149 526	VRCAD	32,6764 572	1 571	WASKSET	0727 20	28 140 545
VD2	06,6211 490	1 490	VRCADR	1470 28	7 564 639 =	WASOPSET	0730 20	13 141 493
VDEF	03,6160 73	1 47	VRCONT	30,7171 737	1 707	WC	1322 27	17 603 680 =
VECCECK	5370 62	2 62 69	VRECCMEM	1663 33	4 606 610 =	WCADRTAB	13,6001 125	3 135 136
VECMOVE	4632 51	2 50	VRECT	1106 23	17 158 610 =	WDAGAIN	07,7234 525	2 525 526
VECSET	4754 53	11 59 69	VRECTC3	34,7750 458	1 441	WDCNT	0076 15	5 524 526 =
VECTAB	1210 24	2 308 324 =	VREF	1623 32	4 717 718 =	WDRET	0106 15	13 238 526 =
VECTEM	1374 30	2 359 360 =	VREFER	27,7203 733	6 723 724	WEIKPL	12,6706 405	2 406
VERB	06,6252 490	1 486	VRFAIL	32,7656 588	1 646	WHIMPER	3053 295	2 295
VERBFAN	07,6130 499	8 498 501	VRTHRES	31,6777 707	1 707	WIE	21,7172 355	1 355
VERBREG	0602 17	20 148 522	VS	1611 31	4 710 717 =	W.O.=1	2545 154	1 151
VERBTAB	07,6150 499	1 499	VSCALE	0006 296	1 319	WLTEST	13,7205 754	- - -
VERECT	21,6660 348	3 343 346	VSL1	03,6516 79	3 79	WMATFLAG	1303 25	3 308 326 =
VERECTC1	21,6754 351	1 348	VSLT1	5630 69	1 46	WOVIRPT	11,6374 271	1 270
VERECTC2	21,6760 351	1 348	VSLT2	03,6477 79	1 69			

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SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F	SYMBOL	H	DEFINITION	REFERENCES	F
WRDRET		0106 15	3 494 495	=	XSTORE	03,6074 71	4 71 72			ZEROLoop	23,7175 319	1 319		
WTALARM		04,6523 114	1 114		XSTOREX	0032 304	4 304	=		ZEROOCTR	2670 160	1 186		
WTCALL2		13,6644 136	2 137 138		XSU	03,6147 72	1 47			ZEROPR	21,7004 351	1 339		
WTCALL		13,6636 136	1 135		XTRAINC	2272 119	1 118			ZEROS1	21,6105 334	1 334		
WTDTTAB		13,6000 125	1 135		XVBOUT	05,7146 264	10 257 260			ZEROS2	21,6114 334	1 334		
WTEXTIT		0600 17	6 17 98		XVII	21,7541 364	1 362			ZEROTEST	04,7142 144	2 142		
WTLST2		04,6535 115	7 113 114		*****					ZEROVAC	30,6270 376	7 333 595		
WTLST3		04,6374 111	1 111		Y	0024 732	4 726	=		ZEROVEC	26,7574 679	3 326 658		
WTLST4		04,6420 112	1 115		YAW	1316 31	- - -	=		ZEROWC	26,7373 676	1 675		
WTLST5		04,6451 113	1 112		YDC	1504 30	6 432 447	=		ZLITBITS	5070 192	4 192 239	=	
WTMLCADR		12,7402 417	2 417		YDSMPR	1504 30	1 462	=		ZLITOFF	2766 192	1 192		
*****					YNB	1504 30	7 31 634	=		ZLITON	2773 192	2 192 193		
X1		0046 13	14 43 746	=	YPIPBUF	1404 29	2 699 731	=		ZNB	1512 30	9 31 634	=	
X2		0047 13	11 309 670	=	YPIPSUM	1376 29	- - -	=		ZPIPBUF	1410 29	2 699 731	=	
XACT0		05,6067 236	2 236 249		YREG	0605 17	- - -			ZPIPRUPT	22,6121 367	1 367		
XACT1		05,6053 236	- - -		YREGLP	0610 17	- - -			ZPIPSUM	1377 29	- - -	=	
XACTALM7		13,7203 264	2 261 262		YSC	1374 27	6 604 652	=		ZPRIME	0026 476	7 461 462	=	
XACTALM		05,6062 236	2 236 264		YSCD	1416 27	7 557 633	=		ZREG	0606 17	1 498		
XAD		03,6153 72	1 47		YSM	1432 30	21 409 468	=		ZREGLP	0611 17	- - -		
XCHX		03,6141 72	1 47		YSMCADR	12,7152 410	1 409			ZRUPT	0024 12	- - -	=	
XDC		1476 30	7 432 472	=	YV	1114 23	8 317 323	=		ZRUPTCON	11,6002 265	1 271		
XDSMPR		1476 30	5 461 462	=	*****					ZSC	1402 27	7 604 676	=	
XKEP		1150 23	13 298 319	=	Z	0002 12	1 365	=		ZSCD	1424 27	10 558 659	=	
XNB		1476 30	15 31 680	=	ZDC	1512 30	4 432 447	=		ZSM	1440 30	17 421 468	=	
XPIPBUF		1400 29	2 699 731	=	ZDSMPR	1512 30	1 462	=		ZV	1122 23	4 320 323	=	
XPIPSUM		1375 29	- - -	=	ZERO	5501 65	226 37 754			ZVLOOP	30,6271 376	1 376		
XREG		0604 17	3 507 515		ZERDATT	14,6033 193	1 193			ZYXR	30,6337 378	1 378		
XREGLP		0607 17	3 489 515		ZERODP	22,7173 476	9 354 696			ZYXW	30,6646 387	1 387		
XSC		1366 27	40 595 680	=	ZERODRVE	14,6043 194	1 193			ZYXWV	30,6656 387	1 387		
XSCD		1410 27	18 557 680	=	ZERDEXIT	5410 63	1 73			*****				
XSHIFT		1041 22	4 639 748		ZEROICTR	2731 191	2 185 193			(V)	1314 28	5 700 701	=	
XSM		1424 30	35 359 468	=										

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SUMMARY OF SYMBOL TABLE LISTING

712 DEFINED BY EQUALS

2826 NORMALLY DEFINED

TOTAL; 3538

MEMORY TYPE & AVAILABILITY DISPLAY

0000	TO	0057	SPECIAL OR NONEXISTENT MEMORY	14,7575	TO	14,7777	AVAILABLE FIXED MEMORY
0060	TO	1726	RESERVED ERASABLE MEMORY	15,6000	TO	20,7777	SPECIAL OR NONEXISTENT MEMORY
1727	TO	1757	AVAILABLE ERASABLE MEMORY	21,6000	TO	21,7566	RESERVED FIXED MEMORY
1760	TO	1777	RESERVED ERASABLE MEMORY	21,7567	TO	21,7777	AVAILABLE FIXED MEMORY
2000	TO	3575	RESERVED FIXED MEMORY	22,6000	TO	22,7204	RESERVED FIXED MEMORY
3576	TO	3777	AVAILABLE FIXED MEMORY	22,7205	TO	22,7777	AVAILABLE FIXED MEMORY
4000	TO	5766	RESERVED FIXED MEMORY	23,6000	TO	23,7477	RESERVED FIXED MEMORY
5767	TO	5776	AVAILABLE FIXED MEMORY	23,7500	TO	23,7777	AVAILABLE FIXED MEMORY
5777	TO	03,7466	RESERVED FIXED MEMORY	24,6000	TO	24,6513	RESERVED FIXED MEMORY
03,7467	TO	03,7777	AVAILABLE FIXED MEMORY	24,6514	TO	24,7777	AVAILABLE FIXED MEMORY
04,6000	TO	04,7517	RESERVED FIXED MEMORY	25,6000	TO	25,7544	RESERVED FIXED MEMORY
04,7520	TO	04,7777	AVAILABLE FIXED MEMORY	25,7545	TO	25,7777	AVAILABLE FIXED MEMORY
05,6000	TO	05,7606	RESERVED FIXED MEMORY	26,6000	TO	26,7773	RESERVED FIXED MEMORY
05,7607	TO	05,7777	AVAILABLE FIXED MEMORY	26,7774	TO	26,7777	AVAILABLE FIXED MEMORY
06,6000	TO	06,7633	RESERVED FIXED MEMORY	27,6000	TO	27,7355	RESERVED FIXED MEMORY
06,7634	TO	06,7777	AVAILABLE FIXED MEMORY	27,7356	TO	27,7777	AVAILABLE FIXED MEMORY
07,6000	TO	07,7531	RESERVED FIXED MEMORY	30,6000	TO	30,7756	RESERVED FIXED MEMORY
07,7532	TO	07,7777	AVAILABLE FIXED MEMORY	30,7757	TO	30,7777	AVAILABLE FIXED MEMORY
10,6000	TO	10,7742	RESERVED FIXED MEMORY	31,6000	TO	31,7536	RESERVED FIXED MEMORY
10,7743	TO	10,7777	AVAILABLE FIXED MEMORY	31,7537	TO	31,7777	AVAILABLE FIXED MEMORY
11,6000	TO	11,7735	RESERVED FIXED MEMORY	32,6000	TO	32,7744	RESERVED FIXED MEMORY
11,7736	TO	11,7777	AVAILABLE FIXED MEMORY	32,7745	TO	32,7777	AVAILABLE FIXED MEMORY
12,6000	TO	12,7761	RESERVED FIXED MEMORY	33,6000	TO	33,7447	RESERVED FIXED MEMORY
12,7762	TO	12,7777	AVAILABLE FIXED MEMORY	33,7450	TO	33,7777	AVAILABLE FIXED MEMORY
13,6000	TO	13,7350	RESERVED FIXED MEMORY	34,6000	TO	34,7771	RESERVED FIXED MEMORY
13,7351	TO	13,7777	AVAILABLE FIXED MEMORY	34,7772	TO	34,7777	AVAILABLE FIXED MEMORY
14,6000	TO	14,7574	RESERVED FIXED MEMORY				

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2000	TO	2033	35	3521	TO	3565	626			5777	69	04,6374	TO	04,6402	111
2034	TO	2045	36	3566	TO	3573	627	03,6000	TO	03,6041	70	04,6403	TO	04,6450	112
2046	TO	2100	98	3574	TO	3575	759	03,6042	TO	03,6114	71	04,6451	TO	04,6506	113
2101	TO	2121	103	4000	TO	4023	37	03,6115	TO	03,6157	72	04,6507	TO	04,6534	114
2122	TO	2123	105	4024	TO	4064	38	03,6160	TO	03,6225	73	04,6535	TO	04,6551	115
2124	TO	2132	106	4065	TO	4112	39	03,6226	TO	03,6260	74	04,6552	TO	04,6613	116
2133	TO	2141	109	4113	TO	4151	40	03,6261	TO	03,6322	75	04,6614	TO	04,6623	117
2142	TO	2172	110	4152	TO	4202	41	03,6323	TO	03,6363	76	04,6624	TO	04,6652	123
2173	TO	2176	111	4203	TO	4232	42	03,6364	TO	03,6433	77	04,6653	TO	04,6704	124
2177	TO	2232	118	4233	TO	4256	43	03,6434	TO	03,6476	78	04,6705	TO	04,6746	140
2233	TO	2275	119	4257	TO	4316	44	03,6477	TO	03,6534	79	04,6747	TO	04,7004	141
2276	TO	2333	120	4317	TO	4367	45	03,6535	TO	03,6567	80	04,7005	TO	04,7055	142
2334	TO	2345	121	4370	TO	4432	46	03,6570	TO	03,6623	81	04,7056	TO	04,7113	143
2346	TO	2376	122	4433	TO	4472	47	03,6624	TO	03,6654	82	04,7114	TO	04,7146	144
2377	TO	2424	151	4473	TO	4523	48	03,6655	TO	03,6701	83	04,7147	TO	04,7153	145
2425	TO	2456	152	4524	TO	4566	49	03,6702	TO	03,6744	84	04,7154	TO	04,7177	146
2457	TO	2504	153	4567	TO	4631	50	03,6745	TO	03,6766	85	04,7200	TO	04,7240	147
2505	TO	2552	154	4632	TO	4677	51	03,6767	TO	03,7032	86	04,7241	TO	04,7303	148
2553	TO	2575	155	4700	TO	4721	52	03,7033	TO	03,7057	87	04,7304	TO	04,7340	149
2576	TO	2627	156	4722	TO	4765	53	03,7060	TO	03,7117	88	04,7341	TO	04,7362	150
2630	TO	2667	159	4766	TO	5017	54	03,7120	TO	03,7142	89	04,7363	TO	04,7374	477
2670	TO	2675	160	5020	TO	5060	55	03,7143	TO	03,7174	90	04,7375	TO	04,7456	478
2676	TO	2742	191	5061	TO	5101	56	03,7175	TO	03,7211	91	04,7457	TO	04,7515	479
2743	TO	2777	192	5102	TO	5140	57	03,7212	TO	03,7262	92	04,7516	TO	04,7517	759
3000	TO	3006	284	5141	TO	5201	58	03,7263	TO	03,7317	93	05,6000	TO	05,6032	235
3007	TO	3035	293	5202	TO	5233	59	03,7320	TO	03,7352	94	05,6033	TO	05,6100	236
3036	TO	3043	294	5234	TO	5301	60	03,7353	TO	03,7367	95	05,6101	TO	05,6104	237
3044	TO	3070	295	5302	TO	5340	61	03,7370	TO	03,7434	96	05,6105	TO	05,6125	238
3071	TO	3077	523	5341	TO	5371	62	03,7435	TO	03,7464	97	05,6126	TO	05,6141	239
3100	TO	3126	533	5372	TO	5415	63	03,7465	TO	03,7466	759	05,6142	TO	05,6166	240
3127	TO	3135	534	5416	TO	5465	64	04,6000	TO	04,6042	99	05,6167	TO	05,6217	241
3136	TO	3167	535	5466	TO	5520	65			04,6043	100	05,6220	TO	05,6252	242
		3170	536	5521	TO	5553	66	04,6044	TO	04,6107	101	05,6253	TO	05,6261	243
3171	TO	3231	547	5554	TO	5575	67	04,6110	TO	04,6144	102	05,6262	TO	05,6315	244
3232	TO	3301	548	5576	TO	5611	68	04,6145	TO	04,6206	104	05,6316	TO	05,6351	245
3302	TO	3322	550	5612	TO	5653	69	04,6207	TO	04,6255	105	05,6352	TO	05,6360	246
3323	TO	3361	551	5654	TO	5705	290	04,6256	TO	04,6273	106	05,6361	TO	05,6366	247
3362	TO	3372	552	5706	TO	5741	291	04,6274	TO	04,6327	107	05,6367	TO	05,6406	248
3373	TO	3446	624	5742	TO	5764	292	04,6330	TO	04,6355	108	05,6407	TO	05,6443	249
3447	TO	3520	625	5765	TO	5766	759	04,6356	TO	04,6373	109	05,6444	TO	05,6453	250

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05,6652 TO 05,6725	255	06,7465 TO 06,7502	530	10,6141 TO 10,6162	162	11,6305 TO 11,6362	270
05,6726 TO 05,6751	256	06,7503 TO 06,7563	531	10,6163 TO 10,6222	163	11,6363 TO 11,6437	271
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05,7605 TO 05,7606	759	07,6435 TO 07,6507	506	10,6701 TO 10,6733	176	11,7377 TO 11,7420	284
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25,6071 TO 25,6106	630	26,6717 TO 26,6771	669	27,7257 TO 27,7334	734	30,7550 TO 30,7617	747
25,6107 TO 25,6152	631	26,6772 TO 26,7042	670	27,7335 TO 27,7353	735	30,7620 TO 30,7663	748
25,6153 TO 25,6165	632	26,7043 TO 26,7116	671	27,7354 TO 27,7355	760	30,7664 TO 30,7735	749
25,6166 TO 25,6211	633	26,7117 TO 26,7172	672	30,6000 TO 30,6044	326	30,7736 TO 30,7754	750
25,6212 TO 25,6241	634	26,7173 TO 26,7243	673	30,6045 TO 30,6066	327	30,7755	760
25,6242 TO 25,6277	635	26,7244 TO 26,7315	674	30,6067 TO 30,6137	328	30,7756	761

OCCUPIED LOCATIONS	PAGE	OCCUPIED LOCATIONS	PAGE	OCCUPIED LOCATIONS	PAGE	OCCUPIED LOCATIONS	PAGE
31,6000 TO 31,6046	684	32,6250 TO 32,6312	559	33,6176 TO 33,6245	593	34,6323 TO 34,6402	431
31,6047 TO 31,6116	685	32,6313 TO 32,6335	560	33,6246 TO 33,6254	594	34,6403 TO 34,6443	432
31,6117 TO 31,6171	686	32,6336 TO 32,6376	563	33,6255 TO 33,6321	595	34,6444 TO 34,6514	433
31,6172 TO 31,6240	687	32,6377 TO 32,6441	564	33,6322 TO 33,6372	596	34,6515 TO 34,6551	434
31,6241 TO 31,6311	688	32,6442 TO 32,6503	565	33,6373 TO 33,6403	597	34,6552 TO 34,6571	435
31,6312 TO 31,6322	689	32,6504 TO 32,6510	566	33,6404 TO 33,6432	598	34,6572 TO 34,6611	436
31,6323 TO 31,6363	690	32,6511 TO 32,6554	567	33,6433 TO 33,6475	599	34,6612 TO 34,6632	437
31,6364 TO 31,6435	691	32,6555 TO 32,6621	568	33,6476 TO 33,6476	600	34,6633 TO 34,6706	438
31,6436 TO 31,6441	692	32,6622 TO 32,6665	569	33,6477 TO 33,6524	601	34,6707 TO 34,6710	439
31,6442 TO 31,6514	693	32,6666 TO 32,6707	570	33,6525 TO 33,6566	602	34,6711 TO 34,6713	440
31,6515 TO 31,6565	694	32,6710 TO 32,6755	571	33,6567 TO 33,6620	603	34,6714 TO 34,6731	441
31,6566 TO 31,6637	695	32,6756 TO 32,7021	572	33,6621 TO 33,6656	604	34,6732 TO 34,6776	442
31,6640 TO 31,6676	696	32,7022 TO 32,7066	573	33,6657 TO 33,6712	605	34,6777 TO 34,7036	443
31,6677 TO 31,6736	706	32,7067 TO 32,7131	574	33,6713 TO 33,6760	606	34,7037 TO 34,7111	444
31,6737 TO 31,7005	707	32,7132 TO 32,7151	575	33,6761 TO 33,7025	607	34,7112 TO 34,7120	445
31,7006 TO 31,7054	708	32,7152 TO 32,7215	579	33,7026 TO 33,7036	608	34,7121 TO 34,7174	446
31,7055 TO 31,7125	709	32,7216 TO 32,7261	580	33,7037 TO 33,7074	613	34,7175 TO 34,7206	447
31,7126 TO 31,7200	710	32,7262 TO 32,7330	581	33,7075 TO 33,7143	614	34,7207 TO 34,7240	448
31,7201 TO 31,7246	711	32,7331 TO 32,7376	582	33,7144 TO 33,7206	615	34,7241 TO 34,7257	449
31,7247 TO 31,7321	712	32,7377 TO 32,7442	583	33,7207 TO 33,7223	616	34,7260 TO 34,7341	450
31,7322 TO 31,7375	713	32,7443 TO 32,7510	584	33,7224 TO 33,7257	617	34,7342 TO 34,7364	451
31,7376 TO 31,7445	714	32,7511 TO 32,7554	585	33,7260 TO 33,7325	618	34,7365 TO 34,7446	452
31,7446 TO 31,7513	715	32,7555 TO 32,7601	586	33,7326 TO 33,7354	619	34,7447 TO 34,7514	453
31,7514 TO 31,7517	716	32,7602 TO 32,7644	587	33,7355 TO 33,7406	620	34,7515 TO 34,7531	454
31,7520 TO 31,7534	753	32,7645 TO 32,7706	588	33,7407 TO 33,7445	697	34,7532 TO 34,7575	455
31,7535 TO 31,7536	761	32,7707 TO 32,7742	589	33,7446 TO 33,7447	761	34,7576 TO 34,7657	456
32,6000 TO 32,6045	553	32,7743 TO 32,7744	761	34,6000 TO 34,6060	426	34,7660 TO 34,7667	457
32,6046 TO 32,6065	554	33,6000 TO 33,6005	589	34,6061 TO 34,6142	427	34,7670 TO 34,7751	458
32,6066 TO 32,6133	556	33,6006 TO 33,6051	590	34,6143 TO 34,6224	428	34,7752 TO 34,7753	459
32,6134 TO 32,6203	557	33,6052 TO 33,6124	591	34,6225 TO 34,6240	429	34,7754 TO 34,7767	460
32,6204 TO 32,6247	558	33,6125 TO 33,6175	592	34,6241 TO 34,6322	430	34,7770 TO 34,7771	761

PARAGRAPHS GENERATED FOR THIS ASSEMBLY; ADDRESS LIMITS AND THE MANUFACTURING LOCATION CODE ARE SHOWN FOR EACH.

2000	TO	2377	PARAGRAPH # 004	MODULE B28	STICK # R1B	SENSE LINE SET 0 (WIRES 1-16)
2400	TO	2777	PARAGRAPH # 005	MODULE B28	STICK # R1B	SENSE LINE SET 1 (WIRES 17-32)
3000	TO	3377	PARAGRAPH # 006	MODULE B28	STICK # R1B	SENSE LINE SET 2 (WIRES 33-48)
3400	TO	3777	PARAGRAPH # 007	MODULE B28	STICK # R1B	SENSE LINE SET 3 (WIRES 49-64)
4000	TO	4377	PARAGRAPH # 010	MODULE B29	STICK # R2A	SENSE LINE SET 0 (WIRES 1-16)
4400	TO	4777	PARAGRAPH # 011	MODULE B29	STICK # R2A	SENSE LINE SET 1 (WIRES 17-32)
5000	TO	5377	PARAGRAPH # 012	MODULE B29	STICK # R2A	SENSE LINE SET 2 (WIRES 33-48)
5400	TO	5777	PARAGRAPH # 013	MODULE B29	STICK # R2A	SENSE LINE SET 3 (WIRES 49-64)
03,6000	TO	03,6377	PARAGRAPH # 014	MODULE B29	STICK # R2B	SENSE LINE SET 0 (WIRES 1-16)
03,6400	TO	03,6777	PARAGRAPH # 015	MODULE B29	STICK # R2B	SENSE LINE SET 1 (WIRES 17-32)
03,7000	TO	03,7377	PARAGRAPH # 016	MODULE B29	STICK # R2B	SENSE LINE SET 2 (WIRES 33-48)
03,7400	TO	03,7777	PARAGRAPH # 017	MODULE B29	STICK # R2B	SENSE LINE SET 3 (WIRES 49-64)
04,6000	TO	04,6377	PARAGRAPH # 020	MODULE B28	STICK # R1A	SENSE LINE SET 0 (WIRES 1-16)
04,6400	TO	04,6777	PARAGRAPH # 021	MODULE B28	STICK # R1A	SENSE LINE SET 1 (WIRES 17-32)
04,7000	TO	04,7377	PARAGRAPH # 022	MODULE B28	STICK # R1A	SENSE LINE SET 2 (WIRES 33-48)
04,7400	TO	04,7777	PARAGRAPH # 023	MODULE B28	STICK # R1A	SENSE LINE SET 3 (WIRES 49-64)
05,6000	TO	05,6377	PARAGRAPH # 024	MODULE B21	STICK # S1B	SENSE LINE SET 0 (WIRES 1-16)
05,6400	TO	05,6777	PARAGRAPH # 025	MODULE B21	STICK # S1B	SENSE LINE SET 1 (WIRES 17-32)
05,7000	TO	05,7377	PARAGRAPH # 026	MODULE B21	STICK # S1B	SENSE LINE SET 2 (WIRES 33-48)
05,7400	TO	05,7777	PARAGRAPH # 027	MODULE B21	STICK # S1B	SENSE LINE SET 3 (WIRES 49-64)
06,6000	TO	06,6377	PARAGRAPH # 030	MODULE B22	STICK # S2A	SENSE LINE SET 0 (WIRES 1-16)
06,6400	TO	06,6777	PARAGRAPH # 031	MODULE B22	STICK # S2A	SENSE LINE SET 1 (WIRES 17-32)
06,7000	TO	06,7377	PARAGRAPH # 032	MODULE B22	STICK # S2A	SENSE LINE SET 2 (WIRES 33-48)
06,7400	TO	06,7777	PARAGRAPH # 033	MODULE B22	STICK # S2A	SENSE LINE SET 3 (WIRES 49-64)
07,6000	TO	07,6377	PARAGRAPH # 034	MODULE B22	STICK # S2B	SENSE LINE SET 0 (WIRES 1-16)
07,6400	TO	07,6777	PARAGRAPH # 035	MODULE B22	STICK # S2B	SENSE LINE SET 1 (WIRES 17-32)
07,7000	TO	07,7377	PARAGRAPH # 036	MODULE B22	STICK # S2B	SENSE LINE SET 2 (WIRES 33-48)
07,7400	TO	07,7777	PARAGRAPH # 037	MODULE B22	STICK # S2B	SENSE LINE SET 3 (WIRES 49-64)
10,6000	TO	10,6377	PARAGRAPH # 040	MODULE B21	STICK # S1A	SENSE LINE SET 0 (WIRES 1-16)
10,6400	TO	10,6777	PARAGRAPH # 041	MODULE B21	STICK # S1A	SENSE LINE SET 1 (WIRES 17-32)
10,7000	TO	10,7377	PARAGRAPH # 042	MODULE B21	STICK # S1A	SENSE LINE SET 2 (WIRES 33-48)
10,7400	TO	10,7777	PARAGRAPH # 043	MODULE B21	STICK # S1A	SENSE LINE SET 3 (WIRES 49-64)
11,6000	TO	11,6377	PARAGRAPH # 044	MODULE B23	STICK # T1B	SENSE LINE SET 0 (WIRES 1-16)
11,6400	TO	11,6777	PARAGRAPH # 045	MODULE B23	STICK # T1B	SENSE LINE SET 1 (WIRES 17-32)
11,7000	TO	11,7377	PARAGRAPH # 046	MODULE B23	STICK # T1B	SENSE LINE SET 2 (WIRES 33-48)
11,7400	TO	11,7777	PARAGRAPH # 047	MODULE B23	STICK # T1B	SENSE LINE SET 3 (WIRES 49-64)
12,6000	TO	12,6377	PARAGRAPH # 050	MODULE B24	STICK # T2A	SENSE LINE SET 0 (WIRES 1-16)
12,6400	TO	12,6777	PARAGRAPH # 051	MODULE B24	STICK # T2A	SENSE LINE SET 1 (WIRES 17-32)
12,7000	TO	12,7377	PARAGRAPH # 052	MODULE B24	STICK # T2A	SENSE LINE SET 2 (WIRES 33-48)
12,7400	TO	12,7777	PARAGRAPH # 053	MODULE B24	STICK # T2A	SENSE LINE SET 3 (WIRES 49-64)

PARAGRAPHS GENERATED FOR THIS ASSEMBLY; ADDRESS LIMITS AND THE MANUFACTURING LOCATION CODE ARE SHOWN FOR EACH.

13,6000	TO 13,6377	PARAGRAPH # 054	MODULE B24	STICK # T2B	SENSE LINE SET 0 (WIRES 1-16)
13,6400	TO 13,6777	PARAGRAPH # 055	MODULE B24	STICK # T2B	SENSE LINE SET 1 (WIRES 17-32)
13,7000	TO 13,7377	PARAGRAPH # 056	MODULE B24	STICK # T2B	SENSE LINE SET 2 (WIRES 33-48)
14,6000	TO 14,6377	PARAGRAPH # 060	MODULE B23	STICK # T1A	SENSE LINE SET 0 (WIRES 1-16)
14,6400	TO 14,6777	PARAGRAPH # 061	MODULE B23	STICK # T1A	SENSE LINE SET 1 (WIRES 17-32)
14,7000	TO 14,7377	PARAGRAPH # 062	MODULE B23	STICK # T1A	SENSE LINE SET 2 (WIRES 33-48)
14,7400	TO 14,7777	PARAGRAPH # 063	MODULE B23	STICK # T1A	SENSE LINE SET 3 (WIRES 49-64)
21,6000	TO 21,6377	PARAGRAPH # 104	MODULE B28	STICK # R1B	SENSE LINE SET 4 (WIRES 65-80)
21,6400	TO 21,6777	PARAGRAPH # 105	MODULE B28	STICK # R1B	SENSE LINE SET 5 (WIRES 81-96)
21,7000	TO 21,7377	PARAGRAPH # 106	MODULE B28	STICK # R1B	SENSE LINE SET 6 (WIRES 97-112)
21,7400	TO 21,7777	PARAGRAPH # 107	MODULE B28	STICK # R1B	SENSE LINE SET 7 (WIRES 113-128)
22,6000	TO 22,6377	PARAGRAPH # 110	MODULE B29	STICK # R2A	SENSE LINE SET 4 (WIRES 65-80)
22,6400	TO 22,6777	PARAGRAPH # 111	MODULE B29	STICK # R2A	SENSE LINE SET 5 (WIRES 81-96)
22,7000	TO 22,7377	PARAGRAPH # 112	MODULE B29	STICK # R2A	SENSE LINE SET 6 (WIRES 97-112)
23,6000	TO 23,6377	PARAGRAPH # 114	MODULE B29	STICK # R2B	SENSE LINE SET 4 (WIRES 65-80)
23,6400	TO 23,6777	PARAGRAPH # 115	MODULE B29	STICK # R2B	SENSE LINE SET 5 (WIRES 81-96)
23,7000	TO 23,7377	PARAGRAPH # 116	MODULE B29	STICK # R2B	SENSE LINE SET 6 (WIRES 97-112)
23,7400	TO 23,7777	PARAGRAPH # 117	MODULE B29	STICK # R2B	SENSE LINE SET 7 (WIRES 113-128)
24,6000	TO 24,6377	PARAGRAPH # 120	MODULE B28	STICK # R1A	SENSE LINE SET 4 (WIRES 65-80)
24,6400	TO 24,6777	PARAGRAPH # 121	MODULE B28	STICK # R1A	SENSE LINE SET 5 (WIRES 81-96)
25,6000	TO 25,6377	PARAGRAPH # 124	MODULE B21	STICK # S1B	SENSE LINE SET 4 (WIRES 65-80)
25,6400	TO 25,6777	PARAGRAPH # 125	MODULE B21	STICK # S1B	SENSE LINE SET 5 (WIRES 81-96)
25,7000	TO 25,7377	PARAGRAPH # 126	MODULE B21	STICK # S1B	SENSE LINE SET 6 (WIRES 97-112)
25,7400	TO 25,7777	PARAGRAPH # 127	MODULE B21	STICK # S1B	SENSE LINE SET 7 (WIRES 113-128)
26,6000	TO 26,6377	PARAGRAPH # 130	MODULE B22	STICK # S2A	SENSE LINE SET 4 (WIRES 65-80)
26,6400	TO 26,6777	PARAGRAPH # 131	MODULE B22	STICK # S2A	SENSE LINE SET 5 (WIRES 81-96)
26,7000	TO 26,7377	PARAGRAPH # 132	MODULE B22	STICK # S2A	SENSE LINE SET 6 (WIRES 97-112)
26,7400	TO 26,7777	PARAGRAPH # 133	MODULE B22	STICK # S2A	SENSE LINE SET 7 (WIRES 113-128)
27,6000	TO 27,6377	PARAGRAPH # 134	MODULE B22	STICK # S2B	SENSE LINE SET 4 (WIRES 65-80)
27,6400	TO 27,6777	PARAGRAPH # 135	MODULE B22	STICK # S2B	SENSE LINE SET 5 (WIRES 81-96)
27,7000	TO 27,7377	PARAGRAPH # 136	MODULE B22	STICK # S2B	SENSE LINE SET 6 (WIRES 97-112)
30,6000	TO 30,6377	PARAGRAPH # 140	MODULE B21	STICK # S1A	SENSE LINE SET 4 (WIRES 65-80)
30,6400	TO 30,6777	PARAGRAPH # 141	MODULE B21	STICK # S1A	SENSE LINE SET 5 (WIRES 81-96)
30,7000	TO 30,7377	PARAGRAPH # 142	MODULE B21	STICK # S1A	SENSE LINE SET 6 (WIRES 97-112)
30,7400	TO 30,7777	PARAGRAPH # 143	MODULE B21	STICK # S1A	SENSE LINE SET 7 (WIRES 113-128)
31,6000	TO 31,6377	PARAGRAPH # 144	MODULE B23	STICK # T1B	SENSE LINE SET 4 (WIRES 65-80)
31,6400	TO 31,6777	PARAGRAPH # 145	MODULE B23	STICK # T1B	SENSE LINE SET 5 (WIRES 81-96)
31,7000	TO 31,7377	PARAGRAPH # 146	MODULE B23	STICK # T1B	SENSE LINE SET 6 (WIRES 97-112)
31,7400	TO 31,7777	PARAGRAPH # 147	MODULE B23	STICK # T1B	SENSE LINE SET 7 (WIRES 113-128)

PARAGRAPHS GENERATED FOR THIS ASSEMBLY; ADDRESS LIMITS AND THE MANUFACTURING LOCATION CODE ARE SHOWN FOR EACH.

32,6000	TO 32,6377	PARAGRAPH # 150	MODULE B24	STICK # T2A	SENSE LINE SET 4 (WIRES 65-80)
32,6400	TO 32,6777	PARAGRAPH # 151	MODULE B24	STICK # T2A	SENSE LINE SET 5 (WIRES 81-96)
32,7000	TO 32,7377	PARAGRAPH # 152	MODULE B24	STICK # T2A	SENSE LINE SET 6 (WIRES 97-112)
32,7400	TO 32,7777	PARAGRAPH # 153	MODULE B24	STICK # T2A	SENSE LINE SET 7 (WIRES 113-128)
33,6000	TO 33,6377	PARAGRAPH # 154	MODULE B24	STICK # T2B	SENSE LINE SET 4 (WIRES 65-80)
33,6400	TO 33,6777	PARAGRAPH # 155	MODULE B24	STICK # T2B	SENSE LINE SET 5 (WIRES 81-96)
33,7000	TO 33,7377	PARAGRAPH # 156	MODULE B24	STICK # T2B	SENSE LINE SET 6 (WIRES 97-112)
33,7400	TO 33,7777	PARAGRAPH # 157	MODULE B24	STICK # T2B	SENSE LINE SET 7 (WIRES 113-128)
34,6000	TO 34,6377	PARAGRAPH # 160	MODULE B23	STICK # T1A	SENSE LINE SET 4 (WIRES 65-80)
34,6400	TO 34,6777	PARAGRAPH # 161	MODULE B23	STICK # T1A	SENSE LINE SET 5 (WIRES 81-96)
34,7000	TO 34,7377	PARAGRAPH # 162	MODULE B23	STICK # T1A	SENSE LINE SET 6 (WIRES 97-112)
34,7400	TO 34,7777	PARAGRAPH # 163	MODULE B23	STICK # T1A	SENSE LINE SET 7 (WIRES 113-128)

OCTAL LISTING OF PARAGRAPH # 004, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

2000	50026 0	30001 0	30027 1	02177 1	50026 0	30001 0	30027 1	02034 1
2010	50026 0	30001 0	30027 1	02630 0	50026 0	30001 0	30027 1	02042 0
2020	50026 0	30001 0	30027 1	02037 1	50026 0	30001 0	30027 1	02377 0
2030	20017 0	32075 1	50015 0	07005 0	03007 0	C: 01101 0	02266 1	32075 1
2040	30015 0	07375 1	32045 1	30015 0	06461 1	C: 30461 1	50577 1	30001 0
2050	02065 0	06004 0	50577 1	30001 0	02065 0	35501 0	50574 1	06027 1
2060	50573 0	10001 1	50600 1	02071 0	06110 1	50600 1	20000 0	30000 1
2070	50573 0	32075 1	30015 0	50572 1	00001 0	C: 10004 1	50015 0	20600 0
2100	00001 0	20017 0	32075 1	30015 0	40000 0	50061 0	30123 1	74606 1
2110	50123 1	40001 1	06145 1	10066 0	00001 0	20017 0	32075 1	50015 0
2120	30120 1	06145 1	50015 0	00062 0	32075 1	50015 0	06256 0	50120 1
2130	32075 1	50015 0	06267 1	20017 0	50577 1	40001 1	50120 1	32075 1
2140	30015 0	06356 1	C: 03000 1	C: 05000 1	C: 07000 0	C: 11000 1	C: 12000 1	C: 13000 0
2150	C: 14000 1	C: 15000 0	C: 16000 0	C: 17000 1	C: 21000 1	C: 22000 1	C: 23000 0	C: 24000 1
2160	C: 25000 0	C: 26000 0	C: 27000 1	C: 30000 1	C: 31000 0	C: 32000 0	C: 33000 1	C: 34000 0
2170	C: 35000 1	C: 36000 1	C: 37000 0	50577 1	30001 0	02065 0	06374 1	30015 0
2200	50030 1	30034 0	50031 0	45501 1	50571 1	30037 0	50001 0	34520 1
2210	30560 1	30557 0	30556 1	30555 1	30554 0	30553 1	30552 0	64476 0
2220	60001 0	50000 1	02226 0	30571 1	34516 1	30571 1	30037 0	10000 0
2230	34516 1	60037 0	02272 1	42260 0	30570 0	30567 0	30566 1	30565 1
2240	30564 0	30563 1	30562 0	30561 0	50015 0	50577 1	72667 0	10000 0
2250	02252 0	00577 1	30577 1	74606 1	20000 0	06000 1	10571 0	02203 1
2260	C: 67774 1	C: 76000 0	30031 0	50034 0	30030 1	50015 0	30027 1	50001 0
2270	30026 0	20025 1	50037 0	02233 1	50571 1	02233 1	30001 0	20017 0
2300	50642 1	20000 0	30000 1	50601 0	73220 0	30601 0	25777 1	42311 1
2310	02321 0	C: 77377 1	20017 0	30001 0	50642 1	20000 0	30000 1	50601 0
2320	40001 1	20601 1	50655 1	40000 0	20601 1	30647 1	10000 0	02332 1
2330	02341 0	45503 0	64516 1	30642 1	64516 1	50001 0	30642 1	20016 1
2340	00001 0	20601 1	36651 0	05662 0	35501 0	02333 0	34516 1	60001 0
2350	30001 0	20000 0	40000 0	60612 1	10000 0	00001 0	C: 00017 1	00001 0
2360	20001 1	00001 0	20001 1	30000 1	50612 1	33314 1	30015 0	50116 1
2370	30001 0	50115 1	06003 1	30116 1	50015 0	20115 0	00001 0	10670 1

OCTAL LISTING OF PARAGRAPH # 005, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

2400	02407 0	02571 0	44505 1	70011 0	64505 0	50011 1	02266 1	50670 0
2410	00673 0	10676 1	02541 0	32553 0	50673 0	32561 1	50674 1	40672 0
2420	40000 0	50671 1	74302 0	64170 0	02545 1	10674 0	02505 0	32554 1
2430	50673 0	34473 0	50676 0	32563 0	50674 1	10675 1	02536 0	10674 0
2440	02517 0	32555 0	50673 0	10676 1	02541 0	32556 0	50673 0	32562 1
2450	50674 1	20000 0	22612 1	40000 0	02511 0	10674 0	02450 1	32557 1
2460	50673 0	32564 1	50674 1	34473 0	50676 0	32570 1	30015 0	30671 1
2470	64335 0	20000 0	40000 0	40000 0	30671 1	50015 0	10675 1	02536 0
2500	10674 0	02517 0	32560 0	50673 0	02411 1	50674 1	20000 0	22576 0
2510	40000 0	40000 0	50014 1	44506 1	70011 0	50011 1	02266 1	50674 1
2520	32570 1	30015 0	50030 1	10671 0	60674 1	20000 0	20001 1	40000 0
2530	40000 0	50014 1	44506 1	70011 0	50011 1	02264 0	10676 1	02541 0
2540	00001 0	50676 0	35501 0	30675 0	62565 0	50014 1	44506 1	70011 0
2550	64506 0	50011 1	02266 1	C: 02425 0	C: 02435 1	C: 02443 0	C: 02455 1	C: 02476 0
2560	C: 02411 1	C: 00032 0	C: 00015 0	C: 00025 0	C: 00040 0	C: 74000 1	C: 06067 0	C: 06001 0
2570	C: 20067 1	44513 0	70011 0	64513 1	50011 1	00001 0	C: 00051 0	C: 00050 1
2600	C: 00047 1	C: 00647 1	C: 00646 0	C: 00645 0	C: 00011 1	C: 00007 0	C: 00006 1	C: 00004 0
2610	C: 00036 1	C: 00035 1	C: 00725 1	C: 00724 0	C: 00723 1	C: 00722 0	C: 00721 0	C: 00720 1
2620	C: 00717 0	C: 00716 1	C: 00715 1	C: 00714 0	C: 00713 1	C: 00712 0	C: 00711 0	C: 00710 1
2630	35501 0	50010 0	10033 0	02643 1	02642 0	64516 1	50033 1	32651 1
2640	50040 0	02266 1	35362 0	50033 1	32650 0	30015 0	50030 1	06115 1
2650	C: 20115 0	C: 37774 1	C: 04025 1	C: 10003 0	C: 14031 0	C: 20033 0	C: 24017 1	C: 30036 1
2660	C: 34034 1	C: 40023 1	C: 44035 1	C: 50037 0	C: 54000 0	C: 60000 1	C: 64000 0	C: 70000 0
2670	35501 0	50052 0	42675 0	50053 1	00001 0	C: 16037 1	20017 0	40035 0
2700	50572 1	40036 0	50573 0	10000 0	00001 0	10000 0	00001 0	40035 0
2710	50572 1	00001 0	30006 1	30006 1	72356 1	50577 1	30006 1	72356 1
2720	50600 1	40000 0	60577 1	10000 0	30600 1	00001 0	30000 1	30577 1
2730	00001 0	35501 0	50047 1	50050 1	50051 0	00001 0	40572 0	30643 0
2740	40573 1	30644 1	00001 0	30001 0	50577 1	10731 0	02752 0	02756 1
2750	02773 0	00577 1	64516 1	74516 0	10000 0	02750 1	10732 0	02762 0
2760	02766 1	02750 1	64516 1	74503 1	10000 0	02750 1	45070 1	70723 0
2770	64500 0	50723 1	00577 1	45070 1	70723 0	65070 0	50723 1	00001 0

OCTAL LISTING OF PARAGRAPH # 006, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

3000	10215 0	07377 0	11762 1	06045 0	03000 1	06045 0	06045 0	20017 0
3010	30001 0	50577 1	11763 0	03021 1	03024 1	30577 1	20016 1	20000 0
3020	00001 0	64664 1	51763 1	03015 0	30577 1	51763 1	03036 1	32172 1
3030	02052 1	C: 23725 0	21763 0	30000 1	31763 1	03016 0	44516 0	70011 0
3040	64516 1	50011 1	00001 0	C: 00531 0	20017 0	20001 1	30000 1	50577 1
3050	11763 0	03054 0	03056 1	03053 1	64664 1	03060 1	03036 1	30577 1
3060	51763 1	03053 1	30001 0	51764 0	03044 1	C: 01103 1	30001 0	05720 1
3070	C: 10777 1	33077 1	70625 1	50110 1	03121 0	03076 0	02124 1	C: 07700 1
3100	50110 1	34513 1	70645 1	10000 0	00001 0	30001 0	64516 1	50071 1
3110	03127 0	33120 1	30015 0	50072 1	05706 0	30062 0	50631 0	06000 1
3120	C: 17354 0	30001 0	64516 1	50071 1	03111 0	30631 0	05662 0	44500 1
3130	20017 0	70626 1	64500 0	50626 0	20016 1	00001 0	30001 0	50071 1
3140	30015 0	50072 1	05706 0	03265 0	30062 0	50627 1	02127 1	02124 1
3150	C: 05777 0	33554 0	50613 0	05654 0	C: 16345 1	05720 1	C: 15472 1	30001 0
3160	50071 1	10632 1	03167 1	03140 1	00071 1	20071 0	00002 0	20071 0
3170	00001 0	C: 00016 0	C: 00011 1	C: 00004 0	50020 0	40020 1	40020 1	40020 1
3200	40020 1	30020 0	00001 0	50022 1	40022 0	40022 0	40022 0	40022 0
3210	30022 1	00001 0	60000 1	60000 1	60000 1	60000 1	60000 1	00001 0
3220	C: 00037 0	C: 01740 0	C: 76000 0	02052 1	02173 0	02256 1	02046 1	C: 00023 0
3230	C: 00021 1	C: 00025 0	C: 00012 1	20017 0	44512 1	70011 0	64512 0	50011 1
3240	20016 1	00001 0	20017 0	44512 1	70011 0	50011 1	20016 1	00001 0
3250	20017 0	44514 1	70011 0	64514 0	50011 1	20016 1	00001 0	44513 0
3260	20017 0	70645 1	50645 0	20016 1	00001 0	44513 0	20017 0	70645 1
3270	64513 1	30645 0	20016 1	00001 0	34513 1	70645 1	10000 0	00001 0
3300	20001 1	00001 0	10630 0	00001 0	34516 1	50630 1	20001 1	00001 0
3310	34606 0	70001 1	60015 0	05720 1	C: 16001 1	43322 0	60001 0	60015 0
3320	05720 1	C: 16002 1	C: 06003 1	30001 0	50113 1	34335 0	60630 1	10000 0
3330	03334 0	03062 0	03351 0	03351 0	35501 0	30634 0	30635 1	30636 1
3340	50114 0	10000 0	03344 1	03351 0	30114 0	20017 0	02060 0	34516 1
3350	50630 1	44514 1	70011 0	50011 1	03257 1	00113 1	30001 0	50113 1
3360	20017 0	03351 0	30001 0	50113 1	20017 0	33372 1	02173 0	C: 17501 0
3370	20016 1	00113 1	C: 00257 1	20001 1	40000 0	20017 0	70725 0	20001 1

OCTAL LISTING OF PARAGRAPH # 007, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

3400	60000 1	50725 1	20016 1	20001 1	00001 0	20001 1	40000 0	20017 0
3410	70725 0	64500 0	50725 1	20016 1	20001 1	00001 0	20001 1	40000 0
3420	20017 0	70646 1	20001 1	60000 1	50646 0	20016 1	20001 1	00001 0
3430	20001 1	40000 0	20017 0	70646 1	50646 0	20016 1	20001 1	00001 0
3440	20001 1	40000 0	20017 0	70647 0	20001 1	60000 1	50647 1	20016 1
3450	20001 1	00001 0	20001 1	40000 0	20017 0	70647 0	50647 1	20016 1
3460	20001 1	00001 0	20001 1	40000 0	20017 0	70645 1	20001 1	60000 1
3470	50645 0	20016 1	20001 1	00001 0	20001 1	40000 0	20017 0	70645 1
3500	50645 0	20016 1	20001 1	00001 0	43515 1	20017 0	70647 0	20001 1
3510	60000 1	50647 1	20016 1	20001 1	00001 0	C: 00177 0	20017 0	40047 0
3520	40000 0	50700 0	40050 0	40000 0	50701 1	40051 1	40000 0	50702 1
3530	20016 1	00001 0	C: 00011 1	C: 00013 0	C: 00014 1	C: 00015 0	C: 00016 0	C: 00017 1
3540	C: 00020 0	C: 00021 1	C: 00022 1	C: 00023 0	C: 00024 1	C: 00025 0	C: 00026 0	C: 00027 1
3550	C: 00030 1	C: 00031 0	C: 00032 0	C: 00033 1	C: 00034 0	C: 00035 1	C: 00036 1	C: 00037 0
3560	C: 00040 0	C: 00050 1	C: 00062 0	C: 00074 1	C: 00144 0	C: 00310 0	C: 00454 1	C: 00620 0
3570	C: 00764 1	C: 01130 1	C: 01750 1	C: 03720 1	03574 1	03575 0	CKSM 41444 0	@
3600	@	@	@	@	@	@	@	@
3610	@	@	@	@	@	@	@	@
3620	@	@	@	@	@	@	@	@
3630	@	@	@	@	@	@	@	@
3640	@	@	@	@	@	@	@	@
3650	@	@	@	@	@	@	@	@
3660	@	@	@	@	@	@	@	@
3670	@	@	@	@	@	@	@	@
3700	@	@	@	@	@	@	@	@
3710	@	@	@	@	@	@	@	@
3720	@	@	@	@	@	@	@	@
3730	@	@	@	@	@	@	@	@
3740	@	@	@	@	@	@	@	@
3750	@	@	@	@	@	@	@	@
3760	@	@	@	@	@	@	@	@
3770	@	@	@	@	@	@	@	@

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OCTAL LISTING OF PARAGRAPH # 010, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

4000	10001 1	50121 0	40015 1	50061 0	04007 1	40061 1	50015 0	34516 1
4010	50066 1	60121 0	50120 1	20000 0	40000 0	64335 0	50063 1	74720 1
4020	60120 1	50121 0	35501 0	04072 0	10215 0	02113 0	40061 1	50015 0
4030	10063 0	04200 1	20120 0	40001 1	10000 0	04065 0	04037 1	20121 1
4040	40001 1	10000 0	04317 0	C: 00042 1	50076 0	04364 1	34043 1	60065 1
4050	60000 1	50020 0	34302 1	70076 1	30076 0	64060 0	10000 0	04233 1
4060	C: 44000 1	44504 0	60076 0	50076 0	04257 0	50063 1	30120 1	64516 1
4070	30120 1	74720 1	30063 1	25777 1	44507 0	50020 0	10020 1	04215 0
4100	C: 00043 0	10020 1	04364 1	04113 0	10066 0	04152 0	34720 0	50015 0
4110	70020 1	20000 0	04453 1	20000 0	40000 0	64516 1	50076 0	10000 0
4120	04145 0	C: 42000 1	04124 1	04143 0	62261 0	10000 0	64516 1	04131 0
4130	04135 1	64121 1	40000 0	50076 0	04145 0	64517 0	10000 0	40076 1
4140	04143 0	40076 1	04144 1	60067 0	50062 0	34720 0	50015 0	70020 1
4150	20000 0	04433 1	34720 0	70020 1	10000 0	04160 1	45503 0	04164 0
4160	40000 0	64650 0	50065 1	45501 1	50065 1	34500 0	70020 1	64100 1
4170	60000 1	30020 0	50023 0	04215 0	50066 1	30023 0	50020 0	04106 1
4200	35501 0	30063 1	04075 1	50066 1	20065 0	04210 0	04533 0	04537 1
4210	04611 0	10066 0	04174 1	40061 1	50015 0	20121 1	40001 1	10000 0
4220	04354 1	04353 0	30121 0	64516 1	30121 0	50076 0	34500 0	70020 1
4230	10000 0	C: 50114 0	04257 0	30076 0	50021 1	30020 0	50022 1	04722 1
4240	20075 1	40046 1	60021 1	30076 0	30022 1	50020 0	10076 1	04257 0
4250	04362 1	04253 1	04362 1	64517 0	10000 0	30076 0	04272 1	40076 1
4260	64504 1	10000 0	64517 0	04300 0	65473 1	10000 0	04356 0	04270 0
4270	34500 0	60076 0	50015 0	50076 0	74606 1	64373 1	50062 0	04305 0
4300	10000 0	04361 1	C: 03777 0	30076 0	50062 0	34473 0	70020 1	10000 0
4310	04313 1	04747 1	50015 0	34720 0	70020 1	20000 0	04367 1	30123 1
4320	50062 0	20065 0	64475 0	50123 1	20065 0	04431 0	30001 0	50112 0
4330	34720 0	70020 1	64340 1	10000 0	04345 1	C: 77776 1	04345 1	10065 0
4340	C: 77775 1	C: 77774 0	45502 1	64340 1	04347 0	20065 0	44475 1	60123 1
4350	50123 1	50062 0	00112 0	04364 1	04326 1	04305 0	10121 1	50121 0
4360	04354 1	30076 0	60067 0	04304 1	34516 1	60121 0	50121 0	00001 0
4370	05612 1	05357 0	05211 0	06000 1	04700 1	05623 0	04766 1	06014 1

OCTAL LISTING OF PARAGRAPH # 011, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

4400	04732 0	04735 1	05061 0	06402 1	05144 0	05141 0	04776 0	06411 0
4410	05075 0	05061 0	04773 0	06213 1	05316 0	05306 1	05221 0	06010 0
4420	05214 0	05633 1	05630 1	06004 0	05234 1	05511 1	05505 1	04552 1
4430	04556 0	04622 0	04204 0	06206 0	06072 1	06077 1	06104 1	06110 1
4440	06141 0	06134 1	06153 0	06147 0	06062 0	06067 0	06115 1	06352 0
4450	06174 0	06434 1	06341 1	07463 1	04024 0	07212 1	06261 1	06226 1
4460	06316 0	06755 0	06757 1	06620 0	06622 1	07453 1	06323 0	06325 0
4470	04024 0	06336 1	06160 0	C: 00003 1	C: 00002 0	C: 00006 1	C: 37777 1	C: 00005 1
4500	C: 40000 0	C: 20000 0	C: 10000 0	C: 04000 0	C: 02000 0	C: 01000 0	C: 00400 0	C: 00200 0
4510	C: 00100 0	C: 00040 0	C: 00020 0	C: 00010 0	C: 00004 0	C: 00002 0	C: 00001 0	C: 76057 1
4520	C: 57777 1	C: 77777 0	C: 20000 0	C: 00000 1	40101 0	50117 0	40100 1	50116 1
4530	40077 0	50115 1	00001 0	20062 1	40002 1	40000 0	04540 1	35501 0
4540	50117 0	20062 1	40001 1	40000 0	50116 1	20062 1	40000 0	40000 0
4550	50115 1	04211 1	40117 1	40000 0	20062 1	50002 0	40116 0	40000 0
4560	20062 1	50001 0	40115 0	40000 0	20062 1	50000 1	04005 0	30076 0
4570	04602 1	40061 1	50015 0	00121 0	40061 1	50015 0	20121 1	30000 1
4600	64335 0	64500 0	50015 0	74606 1	64610 1	04001 1	C: 01777 1	C: 00777 0
4610	C: 05777 0	30001 0	50104 1	34500 0	04632 1	00104 1	30001 0	50104 1
4620	34713 0	04614 0	30062 0	30070 0	50062 0	34500 0	04632 1	30062 0
4630	50070 0	04005 0	50102 1	20062 1	40005 0	20102 0	00000 1	20070 1
4640	50005 1	20062 1	40004 1	20102 0	00000 1	20070 1	50004 0	20062 1
4650	40003 0	20102 0	00000 1	20070 1	50003 1	20062 1	40002 1	20102 0
4660	00000 1	20070 1	50002 0	20062 1	40001 1	20102 0	00000 1	20070 1
4670	50001 0	20062 1	40000 0	20102 0	00000 1	20070 1	50000 1	00001 0
4700	35501 0	20062 1	50000 1	40061 1	50015 0	10063 0	04200 1	20120 0
4710	40001 1	10000 0	04065 0	30000 1	20121 1	40001 1	10000 0	04005 0
4720	C: 00177 0	04044 0	10020 1	35501 0	10000 0	34516 1	60067 0	50075 0
4730	00001 0	C: 00077 1	04747 1	05055 1	04767 0	04747 1	04742 1	04767 0
4740	40117 1	50117 0	40116 0	50116 1	40115 0	50115 1	00001 0	44516 0
4750	50065 1	10066 0	04203 1	00001 0	45501 1	50065 1	10066 0	04203 1
4760	00001 0	45503 0	50065 1	10066 0	04203 1	00001 0	04747 1	34772 1
4770	05020 0	04024 0	C: 00115 1	04761 0	05055 1	04777 1	04761 0	05001 0

OCTAL LISTING OF PARAGRAPH # 012, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

5000	04024 0	30001 0	50104 1	34772 1	50102 1	20000 0	30002 0	20062 1
5010	60002 0	20102 0	50002 0	35501 0	20102 0	60001 0	05023 0	00104 1
5020	50102 1	20102 0	30001 0	20062 1	60001 0	20102 0	50001 0	35501 0
5030	20102 0	60000 1	20062 1	60000 1	20102 0	50000 1	00001 0	50122 0
5040	00001 0	50105 0	20000 0	40000 0	40000 0	20102 0	50000 1	20105 1
5050	40001 1	40000 0	20102 0	50001 0	00001 0	30062 0	65777 0	50062 0
5060	00001 0	04747 1	30062 0	65777 0	50103 0	34772 1	05102 1	04524 0
5070	40020 1	10020 1	34772 1	05443 1	04024 0	04747 1	50015 0	06042 1
5100	06232 1	04024 0	50102 1	20102 0	40001 1	50034 0	20103 1	40001 1
5110	30034 0	20103 1	40000 0	30034 0	60003 1	30100 0	20102 0	40000 0
5120	50101 1	20103 1	40001 1	30034 0	30100 0	60003 1	30101 1	20103 1
5130	40000 0	30034 0	60003 1	30100 0	60100 0	30100 0	30034 0	50077 1
5140	00001 0	04747 1	34516 1	05145 1	04747 1	50110 1	35553 1	50076 0
5150	34731 0	50102 1	30062 0	05041 1	35501 0	50015 0	06776 1	30001 0
5160	50104 1	20000 0	30000 1	50103 0	34772 1	05102 1	04524 0	20104 0
5170	00001 0	30001 0	50104 1	20000 0	30000 1	50062 0	34772 1	05020 0
5200	20104 0	00001 0	30001 0	50104 1	40070 1	40000 0	30062 0	50103 0
5210	04620 1	04754 0	05055 1	05222 0	04754 0	05202 1	30103 0	50062 0
5220	05222 0	04754 0	30070 0	50070 0	05020 0	05242 0	05412 0	05020 0
5230	05242 0	05412 0	05020 0	04024 0	04754 0	05246 1	04740 0	44516 0
5240	50065 1	04024 0	30062 0	65503 1	50062 0	00001 0	35503 1	50064 0
5250	34731 0	30062 0	65777 0	50103 0	30001 0	50105 0	30070 0	50070 0
5260	05102 1	30077 1	50115 1	30100 0	50116 1	30101 1	50117 0	05302 0
5270	05412 0	05102 1	05001 0	05302 0	30070 0	50070 0	65502 0	05102 1
5300	05001 0	00105 0	30103 0	60064 0	50103 0	00001 0	04754 0	40062 1
5310	50107 1	35503 1	50106 0	34475 0	05247 0	05324 1	04754 0	40062 1
5320	50107 1	34475 0	50106 0	05246 1	35475 1	05347 1	40107 0	60106 0
5330	50107 1	50062 0	05250 0	35476 1	05347 1	30107 1	60106 0	50062 0
5340	05250 0	35475 1	50062 0	65502 0	05347 1	04611 0	04024 0	50103 0
5350	40115 0	20103 1	50000 1	40116 0	20103 1	50001 0	00001 0	10066 0
5360	04754 0	10065 0	C: 00007 0	C: 77762 1	05370 0	30062 0	65777 0	05372 1
5370	04611 0	34231 0	50103 0	40070 1	40000 0	05102 1	05442 0	05466 0

OCTAL LISTING OF PARAGRAPH # 014, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

03,6000	06021 1	04703 1	04703 1	04567 1	06021 1	04567 1	04567 1	04703 1
03,6010	06021 1	04703 1	04567 1	04703 1	10115 0	04703 1	04567 1	04703 1
03,6020	04567 1	30001 0	50111 0	10115 0	00111 0	06027 1	06036 1	10116 0
03,6030	00111 0	06033 1	06036 1	10117 1	00111 0	06037 0	34516 1	64516 1
03,6040	60111 0	00000 1	40067 1	60062 0	50062 0	10000 0	00001 0	03062 0
03,6050	06052 0	04024 0	20065 0	06056 1	05100 0	05100 0	40062 1	50062 0
03,6060	64335 0	05637 0	04722 1	40076 1	20075 1	30050 1	04703 1	04722 1
03,6070	30076 0	06074 1	04722 1	40076 1	20075 1	30046 0	04703 1	04722 1
03,6100	20062 1	40000 0	40000 0	06074 1	04722 1	20062 1	40000 0	06074 1
03,6110	04722 1	20075 1	40046 1	40000 0	04701 0	04722 1	20075 1	40050 0
03,6120	20075 1	60046 0	50102 1	10000 0	30102 1	06130 0	04703 1	04703 1
03,6130	20075 1	50046 0	40076 1	04602 1	04722 1	40076 1	20075 1	60046 0
03,6140	06074 1	04722 1	20062 1	30000 1	20075 1	30046 0	04701 0	04722 1
03,6150	20062 1	40000 0	06136 0	04722 1	20062 1	40000 0	40000 0	06136 0
03,6160	35501 0	60070 0	50102 1	34772 1	05041 1	05412 0	04326 1	05041 1
03,6170	05412 0	04326 1	05041 1	05410 1	10020 1	06203 0	03062 0	20062 1
03,6200	40000 0	40000 0	04602 1	20067 1	40052 1	06113 1	10020 1	04571 0
03,6210	03062 0	40076 1	05662 0	20062 1	10000 0	04024 0	06220 1	06325 0
03,6220	20062 1	10001 1	04024 0	04024 0	06325 0	04024 0	40070 1	40000 0
03,6230	50062 0	05235 0	64516 1	30001 0	50104 1	10001 1	65363 1	10000 0
03,6240	64516 1	06251 1	06244 0	06251 1	40000 0	20000 0	34515 1	05416 1
03,6250	00104 1	30115 1	30116 1	30117 0	35501 0	30115 1	10000 0	06236 0
03,6260	00104 1	06263 0	05237 1	30001 0	50107 1	06275 1	05246 1	45502 1
03,6270	60070 0	05347 1	04740 0	07322 0	00107 1	30001 0	50106 0	35502 0
03,6300	60070 0	07301 1	30064 0	64340 1	07301 1	30064 0	64340 1	50062 0
03,6310	07301 1	00106 0	06021 1	04740 0	04024 0	04024 0	06021 1	04024 0
03,6320	04024 0	04740 0	04024 0	34231 0	05064 0	40065 0	60000 1	20000 0
03,6330	06331 0	05202 1	04024 0	04740 0	04024 0	06333 1	35501 0	50116 1
03,6340	04024 0	10020 1	10121 1	06347 1	20067 1	30052 0	04602 1	50121 0
03,6350	34516 1	06362 0	10121 1	50121 0	10020 1	35501 0	06362 0	44516 0
03,6360	50065 1	05072 1	50066 1	04024 0	30117 0	60000 1	50117 0	35501 0
03,6370	60116 1	60116 1	50116 1	35501 0	60115 1	60115 1	50115 1	00001 0

OCTAL LISTING OF PARAGRAPH # 015, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

03,6400	50122 0	00001 0	06042 1	06406 0	50062 0	06364 0	10062 1	06404 1
03,6410	04024 0	35501 0	50102 1	06021 1	06416 1	06430 0	40115 0	60000 1
03,6420	50000 1	06423 1	06430 0	30102 1	64516 1	50102 1	06364 0	06416 1
03,6430	40102 0	20062 1	50000 1	04024 0	40076 1	50062 0	77210 1	30062 0
03,6440	25777 1	44504 0	50105 0	20062 1	34477 1	50103 0	20017 0	20105 1
03,6450	70645 1	50104 1	10020 1	04364 1	06457 1	40103 1	06464 1	20016 1
03,6460	10104 0	04703 1	04574 0	04703 1	20105 1	70645 1	50001 0	20105 1
03,6470	40645 1	70103 1	60001 0	20105 1	50645 0	20016 1	04703 1	50116 1
03,6500	06042 1	06513 0	50062 0	35501 0	60070 0	50102 1	06516 0	05412 0
03,6510	06516 0	05412 0	06516 0	10062 1	06502 0	04024 0	20102 0	30001 0
03,6520	60000 1	20102 0	50001 0	35501 0	20102 0	60000 1	20102 0	60000 1
03,6530	20102 0	50000 1	00001 0	50122 0	00001 0	30001 0	50105 0	07143 0
03,6540	06761 1	06544 1	30001 0	50105 0	06731 1	50115 1	06550 1	04742 1
03,6550	40115 0	50073 0	50102 1	60000 1	50001 0	06570 0	20000 0	44521 1
03,6560	30102 1	60102 1	60102 1	50115 1	40116 0	50116 1	40115 0	50073 0
03,6570	40116 0	50074 1	34231 0	50103 0	34772 1	05102 1	04526 1	05554 0
03,6600	C: 00010 0	C: 63336 1	C: 40452 0	C: 24527 1	C: 17013 0	C: 65631 0	C: 56501 0	C: 02311 0
03,6610	C: 06306 1	C: 77541 1	C: 45020 1	05157 1	C: 50072 1	06364 0	06364 0	00105 0
03,6620	06542 1	04024 0	06535 1	04024 0	36753 0	64476 0	50000 1	36753 0
03,6630	30114 0	30001 0	50113 1	07154 0	10000 0	06643 0	06640 0	06740 1
03,6640	34502 1	50115 1	00114 0	06731 1	30115 1	64520 1	10000 0	03044 1
03,6650	C: 01301 1	06655 1	50115 1	50116 1	00114 0	40116 0	50116 1	50074 1
03,6660	40115 0	50073 0	64522 0	64522 0	50115 1	06673 0	34476 0	50115 1
03,6670	60116 1	64516 1	50116 1	07320 1	40074 0	30116 1	50074 1	40073 1
03,6700	30115 1	50073 0	05554 0	C: 00016 0	C: 07777 1	C: 37777 1	C: 76720 0	C: 55163 0
03,6710	C: 00350 1	C: 00532 0	C: 77575 0	C: 45233 1	C: 00120 1	C: 21555 1	C: 77723 1	C: 56072 1
03,6720	C: 00021 1	C: 14445 1	C: 77774 0	C: 66516 0	05157 1	C: 50072 1	00114 0	06761 1
03,6730	00113 1	30116 1	60000 1	50116 1	35501 0	60115 1	60115 1	00001 0
03,6740	04742 1	36754 1	30114 0	50075 0	06643 0	40115 0	64522 0	50115 1
03,6750	40116 0	50116 1	00075 0	06730 0	06745 1	06624 1	04024 0	06627 1
03,6760	04024 0	40116 0	50116 1	40115 0	64502 1	50115 1	00001 0	30077 1
03,6770	30115 1	50077 1	30100 0	30116 1	50100 0	00001 0	50117 0	07143 0

OCTAL LISTING OF PARAGRAPH # 016, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

03,7000	50102 1	06767 1	07143 0	60102 1	10000 0	07010 1	07133 1	07010 1
03,7010	50102 1	10110 0	06767 1	40077 0	60115 1	10000 0	07030 0	03062 0
03,7020	07132 0	40100 1	60116 1	10000 0	07030 0	03062 0	07132 0	07132 0
03,7030	35501 0	60115 1	07046 1	30001 0	50076 0	07060 0	30100 0	60000 1
03,7040	50100 0	35501 0	60077 1	60077 1	50077 1	06367 0	50022 1	10022 0
03,7050	07036 0	07053 0	07060 0	30100 0	30077 1	30116 1	50115 1	07046 1
03,7060	30077 1	25777 1	50115 1	50034 0	25777 1	40116 0	60001 0	40000 0
03,7070	60100 0	50000 1	07075 1	25777 1	60115 1	50077 1	10000 0	64516 1
03,7100	07102 0	64516 1	25777 1	60115 1	10000 0	64516 1	07110 0	07113 0
03,7110	30077 1	60000 1	10000 0	30077 1	07116 0	40077 0	25777 1	50115 1
03,7120	50116 1	10102 0	07130 1	40116 0	50116 1	40034 1	50115 1	00076 0
03,7130	30034 0	07126 0	10102 0	35503 1	64335 0	50122 0	25777 1	44476 1
03,7140	30003 1	50116 1	07126 0	30001 0	50104 1	07154 0	10000 0	64516 1
03,7150	00104 1	04740 0	44516 0	00104 1	30001 0	50103 0	06021 1	07172 1
03,7160	07165 1	44476 1	50101 1	44516 0	07175 0	35501 0	50115 1	50116 1
03,7170	50117 0	00103 0	34476 0	50101 1	34516 1	60117 0	60101 1	50117 0
03,7200	35501 0	60116 1	60101 1	50116 1	35501 0	60115 1	60101 1	50115 1
03,7210	C: 00017 1	00103 0	06263 0	06275 1	10215 0	07263 1	60070 0	50062 0
03,7220	35503 1	50110 1	50112 0	40115 0	40000 0	20062 1	30000 1	50077 1
03,7230	40116 0	40000 0	20062 1	30001 0	50100 0	37241 1	50076 0	35501 0
03,7240	06776 1	07242 1	30115 1	20062 1	30000 1	50115 1	30116 1	20062 1
03,7250	30001 0	50116 1	05242 0	10112 1	07222 1	45503 0	60070 0	50102 1
03,7260	34772 1	05041 1	04024 0	40061 1	50117 0	30120 1	20067 1	50036 1
03,7270	02101 0	40117 1	50061 0	20067 1	30036 1	50120 1	35501 0	07216 0
03,7300	34772 1	50064 0	20000 0	30000 1	25777 1	44522 1	20064 1	50000 1
03,7310	20064 1	30001 0	50021 1	30021 1	60003 1	20064 1	50001 0	00001 0
03,7320	35501 0	50117 0	30001 0	50104 1	07154 0	10000 0	07336 0	00104 1
03,7330	10115 0	03044 1	C: 01302 1	07331 1	50116 1	00104 1	50062 0	40115 0
03,7340	50022 1	10022 0	07300 0	07405 1	07346 1	07353 0	67066 0	10000 0
03,7350	07300 0	07374 0	07362 1	30117 0	30116 1	30115 1	60062 0	65362 0
03,7360	07336 0	06364 0	34516 1	60062 0	50062 0	06364 0	50022 1	40022 0
03,7370	10022 0	10022 0	07361 1	07405 1	37401 0	25777 1	40115 0	67402 0

OCTAL LISTING OF PARAGRAPH # 020, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

04,6000	06705 0	07363 0	06653 1	06525 0	10216 0	06020 0	10272 1	06020 0
04,6010	10346 1	06020 0	10422 1	06020 0	10476 0	06020 0	03044 1	C; 01201 0
04,6020	65503 1	50574 1	60577 1	50577 1	35501 0	20574 0	47777 0	36042 1
04,6030	50601 0	10000 0	06037 0	40573 1	06067 0	03044 1	C; 01202 0	20601 1
04,6040	10124 1	06105 0	C: 00070 0	06105 0	20601 1	50122 0	60577 1	20601 1
04,6050	50124 0	32261 0	70573 1	60574 1	20601 1	50123 1	36316 0	70573 1
04,6060	10000 0	06063 1	06033 1	30573 0	74606 1	64373 1	40000 0	20601 1
04,6070	50120 1	20215 0	40124 1	60577 1	10000 0	40601 1	06102 1	06100 0
04,6100	30572 1	02076 1	40000 0	50215 1	06100 0	44513 0	60601 0	06030 1
04,6110	36042 1	50601 0	10000 0	20601 1	10124 1	06140 1	06143 1	06121 0
04,6120	06140 1	40573 1	20601 1	60120 1	10000 0	06140 1	03062 0	06140 1
04,6130	34606 0	20601 1	70123 0	50574 1	20601 1	40124 1	50577 1	06047 1
04,6140	44513 0	60601 0	06111 0	50601 0	06100 0	20215 0	30120 1	50120 1
04,6150	30124 0	20215 0	30124 0	50124 0	74607 0	50067 0	64511 0	50070 0
04,6160	40061 1	60123 1	20215 0	30123 1	50123 1	74606 1	30123 1	40000 0
04,6170	60123 1	50061 0	40121 1	60000 1	60000 1	60065 1	20215 0	30121 0
04,6200	50021 1	74473 1	64341 0	50065 1	40021 0	40021 0	50121 0	10122 1
04,6210	06212 0	06214 0	40063 0	06215 1	30063 1	20215 0	30122 0	50063 1
04,6220	10000 0	35501 0	06226 1	40063 0	50063 1	34516 1	50122 0	30115 1
04,6230	20215 0	30115 1	50115 1	30116 1	20215 0	30116 1	50116 1	30117 0
04,6240	20215 0	30117 0	50117 0	35501 0	50066 1	50215 1	20016 1	10120 0
04,6250	35501 0	04026 1	64516 1	50062 0	40061 1	02122 1	20017 0	45501 1
04,6260	50100 0	30124 0	74607 0	10000 0	20000 0	50000 1	06274 0	20017 0
04,6270	40124 1	50124 0	45501 1	50100 0	10134 0	06341 1	03062 0	06300 1
04,6300	10144 1	06341 1	03062 0	06304 0	10154 0	06341 1	03062 0	06310 0
04,6310	10164 0	06341 1	03062 0	06314 1	10174 1	06341 1	C; 70000 0	06320 0
04,6320	10204 0	06341 1	C: 67653 0	06324 1	10214 1	06341 1	03062 0	06330 1
04,6330	10077 0	06333 1	06245 1	20000 0	27777 0	66322 1	50215 1	30120 1
04,6340	06145 1	50101 1	60100 0	10000 0	30001 0	06351 0	30000 1	20001 1
04,6350	00002 0	50077 1	40101 0	50100 0	20077 0	00002 0	40000 0	50061 0
04,6360	30123 1	74606 1	50123 1	34607 1	70124 1	60577 1	50124 0	40000 0
04,6370	50100 0	35501 0	50077 1	06274 0	40037 1	66376 0	10000 0	64664 1

OCTAL LISTING OF PARAGRAPH # 021, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

04,6400	40000 0	64561 1	60577 1	10000 0	60552 0	06451 1	06407 1	40577 0
04,6410	64522 0	64522 0	30037 0	64563 0	60577 1	50577 1	35501 0	30577 1
04,6420	30552 0	30553 1	30554 0	30555 1	30556 1	30557 0	30560 1	30573 0
04,6430	20577 0	06432 1	30561 0	30562 0	30563 1	30564 0	30565 1	30566 1
04,6440	30567 0	30570 0	62260 1	10000 0	03044 1	C: 01203 1	06444 0	30572 1
04,6450	02076 1	10000 0	60553 1	06457 1	64516 1	06535 1	C: 00001 0	10000 0
04,6460	60554 0	06465 0	64516 1	06535 1	C: 00002 0	10000 0	60555 1	06473 1
04,6470	64516 1	06535 1	C: 00003 1	10000 0	60556 1	06501 0	64516 1	06535 1
04,6500	C: 00004 0	10000 0	60557 0	06507 0	64516 1	06535 1	C: 00005 1	10000 0
04,6510	60560 1	06515 0	64516 1	06535 1	C: 00006 1	10000 0	06523 0	30000 1
04,6520	64516 1	06535 1	C: 00007 0	03044 1	C: 01204 0	10647 0	02256 1	02256 1
04,6530	06531 0	32170 0	02052 1	C: 31261 0	02256 1	30001 0	20000 0	30000 1
04,6540	50577 1	34516 1	60001 0	20577 0	60551 0	20577 0	50551 0	40001 1
04,6550	20577 0	06420 1	30001 0	51466 1	31461 0	60000 1	51461 0	35501 0
04,6560	61460 1	61460 1	51460 1	06565 1	06564 0	34516 1	61461 0	64476 0
04,6570	51461 0	35501 0	61460 1	64476 0	51460 1	03062 0	34501 1	25777 1
04,6600	41461 1	51461 0	11460 0	06613 0	11461 1	06607 0	06622 1	31461 0
04,6610	02173 0	C: 10622 0	06617 1	51460 1	34501 1	02173 0	C: 10602 1	36534 0
04,6620	31466 1	00000 1	31467 0	05723 1	20017 0	40645 1	74516 0	50001 0
04,6630	44516 0	70645 1	60001 0	50645 0	10001 1	06642 1	36651 0	02060 0
04,6640	20016 1	05702 1	05706 0	30062 0	50117 0	36651 0	02127 1	30117 0
04,6650	05723 1	C: 10647 0	C: 10652 1	20017 0	64341 0	10000 0	06703 0	03062 0
04,6660	06670 0	02346 1	C: 00002 0	06703 0	32150 1	02046 1	C: 43262 0	02124 1
04,6670	64335 0	10000 0	06703 0	03062 0	06703 0	10612 0	06703 0	34501 1
04,6700	02046 1	C: 42000 1	02124 1	03233 0	02124 1	20017 0	35501 0	51763 1
04,6710	50612 1	51075 1	34513 1	50726 1	35501 0	51765 1	07200 1	34477 1
04,6720	50077 1	44516 0	20077 0	50650 1	40000 0	20077 0	50656 1	10077 0
04,6730	06720 1	50011 1	51762 0	34500 0	50724 0	50725 1	37344 0	50723 1
04,6740	50727 0	34512 0	02173 0	C: 10771 1	30007 0	30007 0	77342 1	50730 0
04,6750	37360 0	50645 0	37361 1	50646 0	37362 1	50647 1	40726 0	74512 1
04,6760	10000 0	06764 1	03007 0	C: 00301 0	07135 1	32160 1	02046 1	C: 67411 1
04,6770	07135 1	37343 1	50727 0	34505 0	02173 0	C: 30201 1	02256 1	51764 0

OCTAL LISTING OF PARAGRAPH # 022, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

04,7000	20017 0	37003 0	06713 1	C: 00030 1	C: 00120 1	11760 0	07010 1	07020 1
04,7010	41776 1	40000 0	21777 0	50001 0	41775 1	40000 0	21777 0	50000 1
04,7020	34512 0	70646 1	10000 0	34502 1	50011 1	35503 1	50726 1	07200 1
04,7030	30004 0	77341 1	67035 0	10000 0	07040 1	C: 37755 1	07040 1	06717 0
04,7040	34477 1	50115 1	20000 0	40650 0	50077 1	40000 0	20115 0	70656 0
04,7050	07142 1	20115 0	40656 0	70077 0	07142 1	10115 0	07041 0	51443 0
04,7060	50726 1	34516 1	61075 1	51075 1	44500 1	70725 0	64500 0	50725 1
04,7070	30007 0	30007 0	50727 0	74720 1	30727 0	77342 1	50730 0	37004 1
04,7100	70727 1	10000 0	45501 1	40000 0	50677 1	10004 1	07114 1	07114 1
04,7110	07111 1	44503 1	70730 1	50730 0	34477 1	50120 1	20016 1	20017 0
04,7120	64516 1	50573 0	20000 0	10647 0	07154 0	07166 1	10000 0	07175 0
04,7130	10120 0	07115 0	32172 1	02052 1	C: 23725 0	20016 1	05654 0	C: 16003 0
04,7140	05720 1	C: 23415 0	10000 0	06717 0	00001 0	06717 0	06717 0	20017 0
04,7150	07200 1	45501 1	51764 0	07070 1	64516 1	50115 1	44720 1	70115 0
04,7160	10000 0	07175 0	20120 0	37350 0	05662 0	07130 1	44516 0	20120 0
04,7170	50650 1	40000 0	20120 0	50656 1	07130 1	35503 1	50726 1	06717 0
04,7200	30001 0	50077 1	34476 0	50037 0	50040 0	34520 1	50560 1	50557 0
04,7210	50556 1	50555 1	50554 0	50553 1	50552 0	42260 0	50570 0	50567 0
04,7220	50566 1	50565 1	50564 0	50563 1	50562 0	50561 0	45501 1	50134 1
04,7230	50144 0	50154 1	50164 1	50174 0	50204 1	50214 0	50033 1	50677 1
04,7240	50703 0	37356 0	50216 1	67357 1	50272 0	67357 1	50346 0	67357 1
04,7250	50422 0	67357 1	50476 1	34505 0	50124 0	33232 1	50115 1	44503 1
04,7260	20115 0	50710 1	10115 0	07256 1	51760 1	50041 1	50056 1	50706 0
04,7270	50215 1	50627 1	50613 0	50633 1	50625 0	50626 0	50630 1	50602 0
04,7300	50603 1	50634 0	50635 1	50636 1	50764 1	50756 0	50757 1	50760 0
04,7310	50761 1	50762 1	50763 0	50731 1	50732 1	50733 0	50734 1	50675 0
04,7320	50735 0	40036 0	51077 0	34475 0	50670 0	37345 1	50673 0	32566 0
04,7330	50672 1	37347 0	50707 1	47346 0	70645 1	50645 0	43227 1	50614 1
04,7340	00077 1	C: 40037 1	C: 35000 1	C: 00050 1	C: 40010 1	C: 02413 0	C: 00014 1	C: 00013 0
04,7350	C: 02124 1	C: 26563 0	C: 26563 0	C: 26563 0	C: 26563 0	C: 26563 0	C: 00216 1	C: 00054 0
04,7360	C: 01340 1	C: 00000 1	C: 00000 1	73220 0	50642 1	02736 1	32166 1	02052 1
04,7370	C: 14006 1	30642 1	20601 1	50115 1	02264 0	50030 1	02677 0	35501 0

OCTAL LISTING OF PARAGRAPH # 024, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

05,6000	06077 1	06102 1	06220 1	06253 0	06262 1	06316 0	06352 0	06075 0
05,6010	06437 1	06437 1	06415 1	06444 0	06454 1	06502 0	07014 0	06752 1
05,6020	06545 0	06652 0	30000 1	30000 1	30000 1	30000 1	30000 1	30000 1
05,6030	06075 0	06043 0	06045 0	30000 1	06075 0	07016 1	06041 1	05720 1
05,6040	C: 26761 0	05720 1	C: 26753 1	05720 1	C: 26757 0	05720 1	C: 64477 1	34514 0
05,6050	70645 1	10000 0	06062 0	44514 1	20017 0	70645 1	64514 0	50645 0
05,6060	20016 1	00001 0	03233 0	02124 1	03362 0	06067 0	02124 1	44514 1
05,6070	20017 0	70645 1	50645 0	20016 1	00001 0	03233 0	06065 1	06105 0
05,6100	06126 1	06075 0	06105 0	06142 0	06367 0	30001 0	50106 0	46113 0
05,6110	60603 1	10000 0	06116 1	C: 00020 0	06075 0	00106 0	46122 1	60603 1
05,6120	10000 0	06075 0	C: 00055 1	06075 0	20106 1	00001 0	06047 1	05654 0
05,6130	C: 30000 1	05654 0	C: 30331 0	06134 1	20017 0	45070 1	70723 0	64500 0
05,6140	50723 1	06065 1	06047 1	03302 0	03310 0	36165 0	03100 0	03315 0
05,6150	03136 0	06064 0	06167 1	36166 0	03100 0	03315 0	03362 0	05654 0
05,6160	C: 30104 1	05654 0	C: 30331 0	06065 1	06065 1	C: 02522 0	C: 04100 1	36216 1
05,6170	03100 0	03315 0	03136 0	06064 0	06153 0	06177 0	06153 0	30001 0
05,6200	50115 1	36217 0	50077 1	35503 1	50116 1	20000 0	30621 1	05654 0
05,6210	C: 30361 0	10077 0	50077 1	10116 0	06204 1	00115 1	C: 02523 1	C: 00702 1
05,6220	06047 1	03302 0	03310 0	36251 1	03100 0	03315 0	03136 0	06064 0
05,6230	06231 1	36252 1	03100 0	03315 0	03362 0	05654 0	C: 30143 1	05654 0
05,6240	C: 30331 0	06065 1	36500 1	05654 0	C: 31433 1	05654 0	C: 30331 0	06065 1
05,6250	06065 1	C: 02567 1	C: 04200 1	06047 1	05654 0	C: 30205 0	05654 0	C: 30331 0
05,6260	06065 1	06065 1	06047 1	03302 0	03310 0	36216 1	03100 0	03315 0
05,6270	03136 0	06064 0	06306 1	06177 0	36315 0	03100 0	03315 0	03362 0
05,6300	05654 0	C: 30223 1	05654 0	C: 30331 0	06065 1	06065 1	36165 0	03100 0
05,6310	03315 0	03136 0	06064 0	06274 0	06274 0	C: 04400 1	06047 1	03302 0
05,6320	03310 0	36216 1	03100 0	03315 0	03136 0	06064 0	06342 1	06177 0
05,6330	36351 0	03100 0	03315 0	03362 0	05654 0	C: 30216 1	05654 0	C: 30331 0
05,6340	06065 1	06065 1	36165 0	03100 0	03315 0	03136 0	06064 0	06330 1
05,6350	06330 1	C: 04500 0	06047 1	05654 0	C: 30134 1	05654 0	C: 30331 0	06065 1
05,6360	06065 1	05654 0	C: 12367 0	05654 0	C: 30327 1	06065 1	06065 1	03302 0
05,6370	03310 0	36406 0	03100 0	03315 0	03136 0	06064 0	06377 1	36166 0

OCTAL LISTING OF PARAGRAPH # 025, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

05,6400	03100 0	03315 0	03362 0	35501 0	50703 0	06065 1	C: 02457 0	05654 0
05,6410	C: 12415 1	05654 0	C: 30327 1	06065 1	06065 1	20017 0	40735 1	74505 1
05,6420	10000 0	06075 0	34516 1	02173 0	C: 30611 1	32261 0	70735 1	10000 0
05,6430	06432 1	02124 1	20016 1	05654 0	C: 14000 1	05720 1	C: 30755 0	05654 0
05,6440	C: 14003 1	06067 0	05720 1	C: 16006 0	06105 0	06451 1	45501 1	50703 0
05,6450	02124 1	45501 1	50677 1	02124 1	06047 1	03302 0	03310 0	36251 1
05,6460	03100 0	03315 0	03136 0	06064 0	06465 0	36501 0	03100 0	03315 0
05,6470	03362 0	36500 1	05654 0	C: 31433 1	05654 0	C: 30331 0	06065 1	06065 1
05,6500	C: 01520 1	C: 05400 0	36544 1	50110 1	03121 0	02124 1	03136 0	02124 1
05,6510	02124 1	20017 0	35501 0	50117 0	30036 1	60617 1	50116 1	35501 0
05,6520	60616 0	60035 1	30115 1	05654 0	C: 07154 0	30115 1	30035 1	30116 1
05,6530	30036 1	10000 0	06534 0	06542 1	34516 1	60036 1	50036 1	06542 1
05,6540	60035 1	30035 1	20016 1	02124 1	C: 02124 1	20017 0	34516 1	02173 0
05,6550	C: 12552 0	02124 1	30005 1	74516 0	50032 0	44516 0	71103 0	60032 0
05,6560	51103 1	30005 1	30001 0	40036 0	31101 0	40035 0	31100 1	30001 0
05,6570	06603 1	06577 1	30572 1	51102 0	30573 0	51103 1	02256 1	34516 1
05,6600	02173 0	C: 12561 0	02256 1	50573 0	35504 0	50572 1	30001 0	50574 1
05,6610	34516 1	70573 1	50032 0	34516 1	71103 0	25777 1	60032 0	10000 0
05,6620	06624 1	03062 0	06624 1	00574 1	30003 1	50032 0	30573 0	25777 1
05,6630	44507 0	30572 1	10000 0	34507 1	06636 1	44507 0	60572 1	74607 0
05,6640	50572 1	30003 1	76651 1	50573 0	34516 1	25777 1	40032 1	20574 0
05,6650	00001 0	C: 37600 0	20017 0	34516 1	02173 0	C: 12657 0	02124 1	30005 1
05,6660	74516 0	50032 0	44516 0	71103 0	60032 0	51103 1	30005 1	30001 0
05,6670	35501 0	50036 1	50035 1	30001 0	06603 1	06724 0	44516 0	71103 0
05,6700	40000 0	60573 0	51105 1	35501 0	60572 1	25777 1	61102 0	10000 0
05,6710	64516 1	06713 1	06720 1	51104 0	32166 1	02052 1	C: 12730 0	02256 1
05,6720	64516 1	40000 0	64505 0	06713 1	34516 1	02173 0	C: 12666 1	02256 1
05,6730	41101 1	61105 1	50116 1	35501 0	61104 0	25777 1	61100 1	50115 1
05,6740	06741 0	35501 0	50117 0	05654 0	C: 07154 0	30116 1	50617 1	30115 1
05,6750	50616 0	06511 1	03302 0	03310 0	10612 0	07146 0	02362 1	C: 00007 0
05,6760	37013 1	50117 0	37012 0	03100 0	03315 0	03136 0	07146 0	06760 0
05,6770	20017 0	34501 1	02046 1	C: 12775 1	02124 1	35362 0	71225 1	20000 0

OCTAL LISTING OF PARAGRAPH # 026, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

05,7000		37002 1		05723 1	C: 12075 0	C: 24511 1	C: 24606 1	C: 24000 1	C: 24372 1	C: 24203 0
05,7010	C: 23421 1		C: 23534 1		C: 02101 0	C: 01225 0	05720 1	C: 23025 1	03302 0	03310 0
05,7020		37143 0		50117 0		37144 1	03100 0	03315 0	03136 0	07146 0
05,7030		10616 1		07035 0		07020 1	07020 1	07020 1	77141 0	10000 0
										07020 1
05,7040		20616 1		07041 0		07066 0	07075 1	07104 0	07052 1	07124 1
05,7050		07020 1		07020 1		02346 1	C: 00014 1	07145 0	20017 0	34507 1
05,7060		10000 0		07146 0		32160 1	02046 1	C: 64336 0	07146 0	37140 0
05,7070		10000 0		07145 0		03373 0	C: 40200 1	07146 0	37140 0	70612 0
										10000 0
05,7100		07145 0		03405 0	C: 40200 1	07146 0	02346 1	C: 00004 0	07120 0	20017 0
05,7110		34515 1		70646 1		10000 0	07146 0	32157 0	02046 1	C: 64000 0
05,7120		02346 1	C: 00002 0		07145 0	07107 0	37140 0	70612 0	10000 0	07145 0
05,7130		03373 0	C: 40400 1		20017 0	37142 1	02173 0	C: 50172 0	07146 0	C: 77715 1
05,7140	C: 00070 0		C: 77770 1		C: 01750 1	C: 00616 0	C: 02101 0	03233 0	03362 0	02124 1
05,7150		02362 1	C: 00024 1		02124 1	30001 0	50060 1	20603 0	37231 0	50054 0
05,7160		20603 0		37331 1	50055 1	40603 0	67167 0	10000 0	07210 0	C: 00055 1
05,7170		07171 1		35503 1	50107 1	34606 0	70054 1	50001 0	20000 0	37515 1
05,7200		50056 1		20001 1	37516 1	50057 0	20001 1	37517 0	30060 1	00000 1
05,7210		34516 1		50107 1	07206 1	20111 1	37463 1	50110 1	20111 1	37500 0
05,7220		50111 0		00001 0	20111 1	37431 0	50110 1	20111 1	37446 0	50111 0
05,7230		00001 0	C: 00000 1		C: 40000 0	C: 40000 0	C: 40000 0	C: 40000 0	C: 40000 0	C: 40000 0
05,7240	C: 40000 0		C: 00000 1		C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 77777 0	C: 00035 1
05,7250	C: 00035 1		C: 00047 1		C: 00044 1	C: 00700 0	C: 00621 1	C: 00616 0	C: 00616 0	C: 00616 0
05,7260	C: 01762 0		C: 00616 0		C: 01763 1	C: 01266 1	C: 01146 0	C: 01276 0	C: 01314 0	C: 00616 0
05,7270	C: 00621 1		C: 00616 0		C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1
05,7300	C: 00000 1		C: 00000 1		C: 00000 1	C: 00744 0	C: 00747 0	C: 00752 1	C: 02000 0	C: 04002 1
05,7310	C: 02005 0		C: 04007 1		C: 02012 0	C: 04062 1	C: 02016 1	C: 02020 1	C: 02022 0	C: 04024 0
05,7320	C: 04027 0		C: 04032 1		C: 04035 0	C: 04040 1	C: 04043 1	C: 04046 1	C: 04051 1	C: 04054 1
05,7330	C: 04057 1		C: 00000 1		C: 00040 0	C: 00140 1	C: 00102 1	C: 00241 0	C: 00200 0	C: 00203 0
05,7340	C: 00302 0		C: 00000 1		C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00200 0
05,7350	C: 00241 0		C: 04102 0		C: 04140 0	C: 04102 0	C: 04102 0	C: 00200 0</		

OCTAL LISTING OF PARAGRAPH # 030, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

06,6000	30001 0	50112 0	07453 1	30001 0	50112 0	07462 0	03265 0	74513 0
06,6010	50106 0	30115 1	50063 1	20000 0	06015 0	07440 0	06072 1	06072 1
06,6020	06072 1	06072 1	06072 1	06072 1	06072 1	06063 1	06063 1	07440 0
06,6030	07440 0	07440 0	07440 0	07440 0	07440 0	06070 0	06252 1	06402 1
06,6040	06057 0	07440 0	07440 0	07440 0	07440 0	07440 0	07475 0	06316 0
06,6050	06302 0	06055 1	07440 0	06501 0	06274 0	05720 1	C: 16007 1	36062 0
06,6060	05720 1	C: 16136 1	C: 00032 0	34473 0	70615 1	10000 0	06072 1	07440 0
06,6070	35501 0	50063 1	10614 0	06077 1	06077 1	06076 0	02124 1	06222 0
06,6100	10633 0	35501 0	50633 1	06104 1	20063 0	32652 1	73220 0	50111 0
06,6110	30614 1	50104 1	50614 1	07341 0	34473 0	70615 1	10000 0	06130 0
06,6120	20076 1	30602 0	50022 1	40022 0	40022 0	30022 1	60063 1	06146 1
06,6130	20076 1	30602 0	50115 1	35501 0	50116 1	33232 1	05416 1	30116 1
06,6140	60063 1	50116 1	06146 1	60115 1	50115 1	06165 0	20076 1	50602 0
06,6150	40614 0	20076 1	66211 0	10000 0	07440 0	07440 0	06206 0	34473 0
06,6160	70615 1	10000 0	06165 0	40614 0	06207 1	34473 0	70615 1	20000 0
06,6170	06170 1	06175 1	05157 1	C: 56217 0	06177 0	05157 1	C: 56215 1	30117 0
06,6200	20076 1	50605 1	30116 1	20076 1	50602 0	06163 0	10614 0	50614 1
06,6210	02124 1	C: 00022 1	C: 00020 0	C: 00012 1	C: 00005 1	C: 00000 1	C: 05174 0	C: 13261 0
06,6220	C: 72603 1	C: 64516 1	20614 0	36226 1	50076 0	00001 0	C: 00004 0	C: 00004 0
06,6230	C: 00004 0	C: 00004 0	C: 00004 0	C: 00003 1	C: 00003 1	C: 00003 1	C: 00003 1	C: 00003 1
06,6240	C: 00002 0	C: 00002 0	C: 00002 0	C: 00002 0	C: 00002 0	03062 0	C: 00001 0	C: 00001 0
06,6250	C: 00000 1	C: 00000 1	35501 0	50602 0	50111 0	33227 0	50614 1	50104 1
06,6260	07341 0	36211 0	50104 1	35501 0	50111 0	07341 0	35501 0	50615 0
06,6270	50613 0	33147 0	50065 1	02124 1	35501 0	50603 1	33230 0	50614 1
06,6300	06621 1	06266 0	06357 0	06343 0	35503 1	60615 0	20076 1	64510 1
06,6310	50615 0	10633 0	35501 0	50633 1	06315 0	02124 1	06357 0	06322 1
06,6320	34516 1	06305 1	30001 0	50073 0	06222 0	20076 1	36352 0	50110 1
06,6330	64516 1	50064 0	35501 0	50111 0	30110 1	07426 0	34504 1	50111 0
06,6340	30064 0	07426 0	00073 0	30001 0	50073 0	06222 0	20076 1	36352 0
06,6350	50064 0	64516 1	50110 1	06332 0	C: 00005 1	C: 00003 1	C: 00000 1	30001 0
06,6360	50073 0	34473 0	70615 1	10000 0	02124 1	43171 1	06374 1	43172 1
06,6370	06374 1	43173 0	06374 1	02124 1	60614 1	10000 0	00001 0	03062 0

OCTAL LISTING OF PARAGRAPH # 031, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

06,6400	00001 0	00073 0	44513 0	20017 0	70645 1	60106 0	50645 0	44510 0
06,6410	70011 0	64510 1	50011 1	46500 0	70723 0	64500 0	50723 1	46476 0
06,6420	70011 0	50011 1	33232 1	50063 1	20017 0	20063 0	10710 0	64516 1
06,6430	06435 0	64516 1	40000 0	76477 1	06440 1	40000 0	76477 1	40000 0
06,6440	20063 0	50710 1	20016 1	10063 0	06423 1	10727 1	06455 0	06455 0
06,6450	06455 0	30007 0	30007 0	74720 1	50727 0	10730 1	06465 0	06465 0
06,6460	06465 0	30007 0	30007 0	76475 0	50730 0	35501 0	51763 1	50726 1
06,6470	51764 0	50111 0	35362 0	07426 0	02124 1	C; 35000 1	C; 01131 0	C; 73777 1
06,6500	C; 40340 1	10614 0	64516 1	06505 1	64516 1	20000 0	36226 1	50076 0
06,6510	10633 0	06516 0	06514 1	06514 1	06545 0	06535 1	10076 1	50076 0
06,6520	06545 0	30613 0	66617 1	50613 0	30076 0	50073 0	30602 0	64335 0
06,6530	50602 0	05654 0	C; 16346 1	30073 0	50076 0	06542 1	34516 1	60633 1
06,6540	50633 1	02124 1	30001 0	50106 0	06557 0	45503 0	60076 0	10000 0
06,6550	00001 0	03062 0	02124 1	00001 0	30001 0	50106 0	06222 0	35501 0
06,6560	20076 1	50602 0	20076 1	50605 1	50111 0	20076 1	44510 0	70615 1
06,6570	76620 1	50615 0	20076 1	36610 0	50104 1	07341 0	20076 1	36613 0
06,6600	50614 1	06621 1	45503 0	60614 1	50614 1	06621 1	20076 1	33167 1
06,6610	50614 1	00106 0	C; 00016 0	C; 00005 1	C; 00004 0	C; 00015 0	C; 00011 1	C; 00003 1
06,6620	C; 77774 0	30001 0	50112 0	40614 0	40000 0	50021 1	46637 1	20017 0
06,6630	20021 0	30710 1	10000 0	06640 0	03062 0	20016 1	00112 0	C; 04000 0
06,6640	30707 1	64516 1	50707 1	20001 1	00001 0	35501 0	50117 0	06707 1
06,6650	06652 0	06700 0	06722 0	10115 0	30115 1	06660 1	06670 0	64335 0
06,6660	66742 0	50115 1	06666 1	34500 0	60115 1	50115 1	35503 1	06646 0
06,6670	30115 1	66742 0	10000 0	06661 0	03062 0	64516 1	40000 0	06661 0
06,6700	20117 1	36737 1	50111 0	20117 1	36734 1	50110 1	00001 0	30001 0
06,6710	50106 0	10115 0	00106 0	00106 0	06715 1	44500 1	70115 0	50115 1
06,6720	20106 1	00001 0	20117 1	36737 1	50116 1	20117 1	36734 1	30115 1
06,6730	05416 1	05171 0	C; 00110 1	06750 0	C; 05605 1	C; 02702 0	C; 16314 0	C; 03656 1
06,6740	C; 21727 0	C; 31463 1	C; 16040 1	30111 0	50116 1	30110 1	30115 1	05416 1
06,6750	05720 1	C; 16542 0	06764 1	30117 0	30116 1	50115 1	06750 0	06764 1
06,6760	06750 0	06764 1	07213 0	06750 0	30001 0	50122 0	20107 0	06767 1
06,6770	07025 1	20063 0	40056 0	40000 0	74606 1	50117 0	20017 0	20117 1

OCTAL LISTING OF PARAGRAPH # 032, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

06,7000	40000 0	40000 0	30115 1	20117 1	40001 1	20016 1	40000 0	30116 1
06,7010	10116 0	07014 0	07021 0	07014 0	05157 1	C: 50107 1	05654 0	C: 07154 0
06,7020	00122 0	20117 1	60000 1	30115 1	07014 0	40624 0	40000 0	06775 1
06,7030	20107 0	07031 1	07034 1	07442 1	20624 0	40000 0	40000 0	30115 1
06,7040	20624 0	40001 1	40000 0	30116 1	33171 0	50614 1	35501 0	50117 0
06,7050	05654 0	C: 07154 0	07315 1	00065 1	05157 1	C: 57121 1	10116 0	34504 1
06,7060	07062 1	44504 0	60116 1	07226 0	05654 0	C: 06367 0	05654 0	C: 06367 0
06,7070	07235 1	05654 0	C: 06367 0	10115 0	07100 1	07100 1	40000 0	50115 1
06,7100	10122 1	07116 0	07112 1	10115 0	03062 0	07114 1	07107 0	30115 1
06,7110	74476 1	50115 1	05720 1	C: 17053 1	44476 1	07111 1	40115 0	74476 1
06,7120	40000 0	07111 1	C: 26161 0	C: 30707 1	C: 21616 0	C: 07071 0	C: 71527 1	05157 1
06,7130	C: 50107 1	30117 0	30116 1	30115 1	10000 0	07442 1	07140 0	07442 1
06,7140	07224 1	07235 1	07112 1	10115 0	07150 1	07150 1	07442 1	07442 1
06,7150	30115 1	67126 0	50115 1	05157 1	C: 57123 0	34503 0	60116 1	07226 0
06,7160	07066 0	05157 1	C: 50107 1	30117 0	60000 1	50117 0	35501 0	60116 1
06,7170	07226 0	07235 1	20107 0	07173 0	07205 1	30063 1	50063 1	60624 1
06,7200	50001 0	30116 1	20001 1	50001 0	07112 1	35501 0	07177 1	05157 1
06,7210	C: 50107 1	07213 0	07163 1	30001 0	50111 0	34475 0	50110 1	05654 0
06,7220	C: 06364 0	10110 0	07216 0	00111 0	30116 1	60000 1	50116 1	00001 0
06,7230	60115 1	50115 1	00001 0	50122 0	00001 0	10122 1	07442 1	00001 0
06,7240	07442 1	30001 0	50106 0	10115 0	07253 1	07253 1	64516 1	50115 1
06,7250	06343 0	40116 0	07255 1	06322 1	30116 1	67314 0	50116 1	35501 0
06,7260	60115 1	50115 1	07266 1	34476 0	50115 1	50116 1	35502 0	50076 0
06,7270	33232 1	05416 1	20115 0	32652 1	73220 0	50111 0	35501 0	30117 0
06,7300	30116 1	50115 1	30614 1	50104 1	10000 0	50614 1	07341 0	10076 1
06,7310	07267 0	43227 1	50614 1	00106 0	C: 02476 0	30001 0	50106 0	35501 0
06,7320	50111 0	34473 0	07426 0	35502 0	07426 0	10115 0	07336 0	07336 0
06,7330	64516 1	50115 1	06343 0	40116 0	50116 1	07337 1	06322 1	33172 0
06,7340	07267 0	30001 0	50112 0	33220 1	70104 0	50021 1	30021 1	50102 1
06,7350	34516 1	70104 0	10000 0	07355 0	07365 0	30111 0	03212 0	50111 0
06,7360	34501 1	70104 0	10000 0	35503 1	64516 1	50104 1	20017 0	20102 0
06,7370	10710 0	07373 1	03062 0	64516 1	50103 0	20104 0	77422 0	25777 1

OCTAL LISTING OF PARAGRAPH # 034, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

07,6000	07354 1	07434 0	07456 1	30001 0	50063 1	07423 0	06705 0	35501 0
07,6010	50633 1	33147 0	50065 1	10613 1	06035 1	06035 1	06017 1	34473 0
07,6020	70615 1	10000 0	06024 1	06030 1	10614 0	06356 1	06356 1	06030 1
07,6030	40613 1	50613 0	05654 0	C: 14003 1	00613 0	35501 0	50615 0	40602 1
07,6040	66043 0	10000 0	06046 0	C: 00032 0	06045 0	06130 0	36107 1	05662 0
07,6050	20107 0	06051 0	06054 0	06210 1	10054 1	06126 1	06356 1	06067 0
07,6060	33173 1	50614 1	30624 1	64516 1	50624 1	07225 0	06130 0	34500 0
07,6070	50633 1	43147 1	60065 1	10000 0	06110 1	03062 0	06110 1	06304 0
07,6100	10615 1	06356 1	30606 1	50624 1	36107 1	05662 0	06130 0	C: 13153 1
07,6110	44513 0	70602 1	66115 1	10000 0	06120 1	C: 77772 0	06120 1	06130 0
07,6120	33173 1	50614 1	40624 0	40000 0	07225 0	06130 0	64516 1	50624 1
07,6130	46143 0	60602 0	10000 0	64516 1	06136 0	06145 1	50115 1	03323 0
07,6140	30115 1	66144 0	05723 1	C: 00040 0	C: 12000 1	20602 1	36150 0	05723 1
07,6150	C: 16356 0	C: 16372 0	C: 16377 0	C: 16404 0	C: 16365 0	C: 16360 0	C: 16476 0	C: 15030 0
07,6160	C: 17342 1	C: 17102 1	C: 17102 1	C: 17102 1	C: 17102 1	C: 17102 1	C: 17102 1	C: 17102 1
07,6170	C: 17321 1	C: 16645 1	C: 16655 0	C: 16671 0	C: 16620 1	C: 16564 1	C: 16356 0	C: 16356 0
07,6200	C: 16356 0	C: 17216 1	C: 15503 0	C: 15465 1	C: 15472 1	C: 15475 0	C: 10000 0	C: 17273 1
07,6210	10054 1	06215 1	06356 1	06215 1	06215 1	44475 1	60602 0	10000 0
07,6220	06130 0	03062 0	06223 1	35503 1	50064 0	66254 1	50624 1	20064 1
07,6230	40056 0	40000 0	50063 1	72261 1	03203 0	06255 0	06242 0	34516 1
07,6240	60063 1	50063 1	30063 1	74606 1	20000 0	40000 0	40000 0	20624 0
07,6250	30000 1	10064 1	06224 0	06130 0	00073 0	50110 1	30001 0	30110 1
07,6260	20000 0	06262 1	00110 1	00110 1	00110 1	00110 1	06272 0	06272 0
07,6270	00110 1	06272 0	20110 0	00001 0	40001 1	50613 0	33171 0	06307 0
07,6300	40001 1	50613 0	33172 0	06307 0	40001 1	50613 0	33173 1	50614 1
07,6310	05654 0	C: 14554 0	05654 0	C: 14000 1	43147 1	60065 1	10000 0	06323 0
07,6320	03062 0	06323 0	00065 1	45501 1	50627 1	00065 1	50603 1	30001 0
07,6330	50063 1	36107 1	05662 0	10054 1	64516 1	06340 0	06341 1	06341 1
07,6340	50624 1	33230 0	50614 1	40603 0	06353 1	50602 0	30001 0	50063 1
07,6350	33227 0	50614 1	40602 1	40000 0	07261 0	00063 1	05720 1	C: 15442 1
07,6360	45503 0	06430 0	20624 0	40002 1	30101 1	44516 0	06430 0	20624 0
07,6370	40001 1	30100 0	06457 1	20624 0	40000 0	30077 1	06411 0	44516 0

OCTAL LISTING OF PARAGRAPH # 035, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

07,6400	06430 0	20624 0	40001 1	06375 0	45503 0	06430 0	20624 0	40002 1
07,6410	06375 0	45503 0	60602 0	10000 0	06417 0	00065 1	06417 0	50064 0
07,6420	20000 0	33171 0	50614 1	20064 1	40077 0	07225 0	30064 0	06413 1
07,6430	50110 1	30001 0	50111 0	44516 0	60603 1	10000 0	06442 0	03062 0
07,6440	06442 0	00111 0	20107 0	36473 1	20000 0	40000 0	40000 0	72261 1
07,6450	03203 0	60110 1	10000 0	00111 0	03062 0	06356 1	00111 0	30001 0
07,6460	50063 1	20107 0	06462 1	06465 0	00063 1	06740 1	06255 0	00063 1
07,6470	30624 1	64516 1	50624 1	00063 1	C: 00055 1	C: 00054 0	20107 0	36473 1
07,6500	20000 0	40000 0	40000 0	72261 1	03203 0	50063 1	50064 0	60624 1
07,6510	20000 0	40000 0	20064 1	30604 0	10064 1	06506 1	35501 0	50116 1
07,6520	50117 0	20063 0	33171 0	50614 1	20063 0	40604 1	50115 1	06756 0
07,6530	50111 0	05654 0	C: 13213 0	20107 0	06534 0	06540 0	06746 1	06551 0
07,6540	06740 1	06551 0	05654 0	C: 15241 1	10063 0	06547 1	00065 1	50063 1
07,6550	06516 0	20000 0	36554 0	05723 1	C: 15442 1	C: 16542 0	C: 14645 0	C: 14743 1
07,6560	C: 14752 1	C: 14757 1	C: 14653 1	C: 14761 1	45503 0	06430 0	36715 1	06345 0
07,6570	06274 0	36716 1	06345 0	06300 1	36717 0	06345 0	06304 0	44475 1
07,6600	06720 1	36107 1	05662 0	35501 0	07000 0	20624 0	50000 1	34516 1
07,6610	07000 0	20624 0	50001 0	35503 1	07000 0	20624 0	50002 0	06705 0
07,6620	44516 0	06430 0	36715 1	06345 0	06274 0	36716 1	06345 0	06300 1
07,6630	44477 0	06720 1	36107 1	05662 0	35501 0	07000 0	20624 0	50000 1
07,6640	34516 1	07000 0	20624 0	50001 0	06705 0	06274 0	36107 1	05662 0
07,6650	35501 0	07000 0	20624 0	50000 1	06705 0	44516 0	06430 0	34500 0
07,6660	50633 1	06300 1	36107 1	05662 0	34516 1	07000 0	20624 0	50001 0
07,6670	06705 0	45503 0	06430 0	34500 0	50633 1	06304 0	36107 1	05662 0
07,6700	35503 1	07000 0	20624 0	50002 0	06705 0	35501 0	50615 0	45501 1
07,6710	50632 0	43227 1	50614 1	05720 1	C: 15600 0	C: 00021 1	C: 00022 1	C: 00023 0
07,6720	50063 1	30001 0	50106 0	40615 1	50021 1	40021 0	40021 0	10000 0
07,6730	06732 1	00106 0	60063 1	10000 0	06356 1	03062 0	06356 1	00106 0
07,6740	30001 0	50112 0	33221 0	70055 0	03174 0	00112 0	30001 0	50112 0
07,6750	20063 0	40056 0	40000 0	72261 1	03203 0	00112 0	30001 0	50112 0
07,6760	20107 0	06761 1	06775 1	20063 0	33220 1	70055 0	20063 0	26772 1
07,6770	00000 1	00112 0	06771 0	03174 0	03203 0	33220 1	70055 0	00112 0

OCTAL LISTING OF PARAGRAPH # 036, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

07,7000	50063 1	30001 0	50106 0	35501 0	50122 0	20063 0	30607 0	50116 1
07,7010	20063 0	30604 0	50115 1	20107 0	07014 0	07043 1	20063 0	40056 0
07,7020	40000 0	74606 1	25777 1	60063 1	50624 1	10615 1	07055 0	06746 1
07,7030	06255 0	07053 0	34516 1	60624 1	50624 1	60063 1	50063 1	35501 0
07,7040	20063 0	47777 0	07053 0	10615 1	07055 0	06740 1	06255 0	07053 0
07,7050	35501 0	50063 1	07032 1	30115 1	00106 0	06756 0	50111 0	05654 0
07,7060	C: 13222 1	20107 0	07062 1	07066 0	06746 1	07067 1	06740 1	20000 0
07,7070	37072 0	05723 1	C: 15442 1	C: 15140 0	C: 15054 1	C: 15127 1	C: 15161 0	C: 15207 0
07,7100	C: 15143 0	C: 15161 0	44500 1	70624 0	50116 1	37421 1	70602 1	03203 0
07,7110	50022 1	30022 1	60603 1	50115 1	40630 0	65503 1	10000 0	03356 1
07,7120	07123 0	03062 0	03257 1	20017 0	10625 1	07131 0	34516 1	02173 0
07,7130	C: 17137 1	30115 1	50625 0	30116 1	50626 0	20016 1	00065 1	02677 0
07,7140	02736 1	10626 1	07146 0	07146 0	07155 1	07155 1	37161 0	02173 0
07,7150	C: 17137 1	32164 0	02052 1	C: 17162 1	02256 1	35501 0	50625 0	50626 0
07,7160	02256 1	C: 00144 0	10626 1	07167 0	07167 0	02124 1	02124 1	03274 0
07,7170	07214 1	37421 1	70625 1	50110 1	03121 0	02124 1	37212 1	70625 1
07,7200	03174 0	50020 0	30020 0	50602 0	37213 0	50065 1	44500 1	70626 1
07,7210	50624 1	06046 0	C: 00700 0	C: 03071 1	03250 0	02124 1	33171 0	50614 1
07,7220	40624 0	40000 0	05730 0	07225 0	02124 1	50022 1	30001 0	50106 0
07,7230	30614 1	64501 1	50614 1	35502 0	50076 0	40022 0	40022 0	40022 0
07,7240	40000 0	75362 1	20000 0	32652 1	73220 0	50111 0	30614 1	50104 1
07,7250	10000 0	50614 1	05720 1	C: 15434 0	10076 1	07234 0	43227 1	50614 1
07,7260	00106 0	50020 0	30001 0	50106 0	34516 1	50076 0	40020 1	40020 1
07,7270	30020 0	50022 1	07241 1	07306 0	35501 0	30603 1	50115 1	33230 0
07,7300	50614 1	05654 0	C: 14621 1	30115 1	05720 1	C: 10002 1	40001 1	50613 0
07,7310	33230 0	50614 1	35501 0	50603 1	05654 0	C: 14621 1	05654 0	C: 14000 1
07,7320	00065 1	33147 0	50075 0	03323 0	34516 1	70616 1	10000 0	07340 1
07,7330	33223 1	50073 0	30624 1	50074 1	44516 0	70616 1	20017 0	00073 0
07,7340	33226 1	07331 1	33147 0	50075 0	03323 0	33224 0	50073 0	30624 1
07,7350	50074 1	20017 0	30616 0	00073 0	37373 1	50065 1	37421 1	70110 0
07,7360	50115 1	37422 1	70110 0	03174 0	50020 0	30020 0	50116 1	10115 0
07,7370	07374 0	30116 1	06345 0	03125 1	10116 0	07401 0	30115 1	06326 0

OCTAL LISTING OF PARAGRAPH # 040, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

10,6000	C: 06006 1	C: 01117 1	C: 01116 0	C: 06114 0	C: 06114 0	C: 06114 0	C: 01115 0	C: 01114 1
10,6010	C: 01113 0	C: 01112 1	C: 01111 1	C: 01110 0	C: 01107 0	C: 01106 1	C: 01105 1	C: 01104 0
10,6020	C: 01103 1	C: 01102 0	C: 01101 0	C: 01100 1	C: 01123 0	C: 06114 0	C: 01211 1	C: 01210 0
10,6030	C: 01227 1	C: 01226 0	C: 01225 0	C: 01224 1	C: 01223 0	C: 01222 1	C: 01221 1	C: 01220 0
10,6040	C: 01217 1	C: 01216 0	C: 01215 0	C: 01214 1	C: 01463 1	C: 01462 0	C: 01467 0	C: 01466 1
10,6050	C: 01465 1	C: 01464 0	C: 01000 0	C: 00777 0	C: 00776 1	C: 00775 1	C: 00774 0	C: 00773 1
10,6060	C: 00772 0	C: 00771 0	C: 00770 1	C: 00767 1	C: 00766 0	C: 00765 0	C: 06026 0	C: 01457 0
10,6070	C: 01456 1	C: 01113 0	C: 01112 1	C: 01111 1	C: 01110 0	C: 01107 0	C: 01106 1	C: 01105 1
10,6100	C: 01104 0	C: 01103 1	C: 01102 0	C: 01101 0	C: 01100 1	C: 00702 1	C: 00701 1	C: 00700 0
10,6110	C: 01005 0	C: 01003 0	C: 01001 1	C: 01075 1	C: 52525 1	30034 0	50031 0	37047 0
10,6120	50040 0	30004 0	36140 1	70004 1	10000 0	06133 0	06130 0	06133 0
10,6130	44512 1	70645 1	50645 0	10677 0	06142 0	06141 0	06223 1	06223 1
10,6140	C: 40037 1	35503 1	50677 1	30003 1	50032 0	20677 0	40700 1	50600 1
10,6150	20677 0	40047 0	07410 0	25777 1	46215 0	50577 1	10000 0	06166 0
10,6160	06220 1	06163 0	06220 1	50577 1	40677 0	06171 0	50577 1	34516 1
10,6170	60677 1	50034 0	36200 0	30012 1	77465 0	30012 1	66201 1	10000 0
10,6200	C: 02040 1	C: 75737 0	07377 0	40577 0	64476 0	50042 1	36200 0	30012 1
10,6210	20034 1	67452 0	30012 1	66201 1	10000 0	C: 05605 1	03062 0	07377 0
10,6220	34516 1	25777 1	40032 1	20033 0	06225 1	06701 1	06447 0	06701 1
10,6230	06355 1	06701 1	06501 0	06701 1	10726 0	06240 1	06240 1	06463 0
10,6240	30006 1	30006 1	76252 0	50600 1	36252 1	70726 0	40000 0	60600 1
10,6250	10000 0	06255 0	C: 07000 0	06255 0	06463 0	46252 0	70726 0	60600 1
10,6260	50726 1	36277 0	70723 0	64500 0	50723 1	35503 1	50600 1	20000 0
10,6270	34503 0	70726 0	10000 0	06300 1	10600 0	06266 0	06463 0	C: 37437 0
10,6300	20600 0	06302 0	06305 1	06346 0	06327 1	10727 1	06316 0	06350 1
10,6310	06350 1	06350 1	34507 1	60723 1	50723 1	06274 0	64516 1	74515 0
10,6320	10000 0	06350 1	34513 1	70726 0	10000 0	06350 1	06312 1	10727 1
10,6330	06336 1	06350 1	06350 1	06350 1	34511 0	06313 0	44511 1	70727 1
10,6340	66343 0	10000 0	06350 1	C: 77767 1	06350 1	06334 0	34510 1	06313 0
10,6350	20600 0	44503 1	70726 0	50726 1	06274 0	32171 1	02052 1	C: 20364 1
10,6360	44505 1	70011 0	50011 1	06463 0	37503 0	20017 0	70726 0	10000 0
10,6370	06405 0	44513 0	70011 0	50001 0	40011 0	74513 0	60001 0	30011 1

OCTAL LISTING OF PARAGRAPH # 041, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

10,6400	50011 1	44514 1	70726 0	50726 1	02124 1	62261 0	10000 0	06427 0
10,6410	06427 0	06427 0	45362 1	70612 0	66417 0	10000 0	06427 0	C: 77757 1
10,6420	06427 0	46425 0	60612 1	10000 0	06371 1	C: 00021 1	06371 1	44514 1
10,6430	70726 0	64514 0	30726 1	74514 1	10000 0	06437 1	02124 1	20016 1
10,6440	02346 1	C: 00077 1	06444 0	02124 1	02362 1	C: 00077 1	02124 1	40006 0
10,6450	40006 0	74512 1	10000 0	06463 0	34515 1	70646 1	10000 0	06463 0
10,6460	32157 0	02046 1	C: 64000 0	30006 1	30006 1	74507 0	10000 0	06471 0
10,6470	06534 0	34507 1	70646 1	10000 0	06534 0	32160 1	02046 1	C: 64336 0
10,6500	06534 0	10703 1	06507 0	06506 1	06463 0	06463 0	34516 1	50703 0
10,6510	50637 0	34516 1	50640 0	10703 1	06525 0	20703 1	40704 0	50600 1
10,6520	20703 1	40052 1	07410 0	06631 0	06463 0	40053 0	60705 0	50001 0
10,6530	06515 0	20000 0	44477 0	06523 0	10725 0	06544 1	06544 1	34302 1
10,6540	70725 0	50725 1	62667 1	06623 0	10723 0	06554 0	06554 0	34302 1
10,6550	70723 0	50723 1	62665 0	06623 0	10724 1	06564 0	06564 0	34302 1
10,6560	70724 1	50724 0	62666 0	06623 0	10707 0	06567 0	02262 0	50707 1
10,6570	45501 1	50600 1	30706 0	65504 0	50706 0	20706 1	10710 0	10706 1
10,6600	06573 0	06612 1	C: 00012 1	10600 0	03062 0	50707 1	02262 0	50600 1
10,6610	36602 0	06574 1	64516 1	20706 1	50710 1	74302 0	50600 1	32261 0
10,6620	20706 1	72652 0	60600 1	50010 0	37126 0	50040 0	40033 0	50033 1
10,6630	02262 0	50577 1	30001 0	50600 1	10577 0	06644 1	00600 1	06641 1
10,6640	00600 1	50577 1	40637 1	06647 1	50577 1	34516 1	60637 0	50642 1
10,6650	36200 0	30012 1	20640 1	77465 0	30012 1	66201 1	10000 0	03062 0
10,6660	03062 0	07377 0	40577 0	64476 0	20640 1	50042 1	36200 0	30012 1
10,6670	20642 0	67473 0	30012 1	66201 1	10000 0	03062 0	03062 0	07377 0
10,6700	00600 1	35362 0	30670 0	66705 0	10000 0	C: 77770 1	03062 0	06711 0
10,6710	02571 0	30007 0	30007 0	50637 0	74720 1	30637 0	76770 0	50640 0
10,6720	30004 0	50034 0	74510 0	10000 0	02571 0	10034 1	06734 1	06734 1
10,6730	06731 1	37003 0	70640 1	50640 0	10732 0	06751 1	07043 1	34503 0
10,6740	70640 1	60730 0	74503 1	10000 0	06746 1	07074 0	03007 0	C: 00101 1
10,6750	07074 0	34501 1	70730 1	50001 0	34501 1	70640 1	40000 0	60001 0
10,6760	10000 0	07010 1	C: 34760 1	07017 0	40732 0	60640 0	10000 0	06773 1
10,6770	C: 35000 1	07000 0	07074 0	10724 1	07027 0	07027 0	35501 0	07075 1

OCTAL LISTING OF PARAGRAPH # 042, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

10,7000	67176 0	10000 0	06773 1	C: 31000 0	06773 1	34501 1	60640 0	07075 1
10,7010	10703 1	07013 1	07013 1	34516 1	40000 0	50703 0	06764 1	10703 1
10,7020	07023 1	07023 1	07041 0	07034 1	03007 0	C: 00104 1	07032 1	07034 1
10,7030	03007 0	C: 00102 1	45501 1	07075 1	10730 1	00001 0	00001 0	07076 1
10,7040	07076 1	50703 0	06764 1	40730 1	60640 0	10000 0	07052 1	C: 37772 1
10,7050	07052 1	07074 0	40730 1	74503 1	70640 1	10000 0	07360 0	34505 0
10,7060	70640 1	10000 0	34515 1	64500 0	30724 0	77254 1	60724 0	50724 0
10,7070	30640 0	50730 0	02743 0	07076 1	30640 0	50730 0	10727 1	07102 0
10,7100	07102 0	02262 0	10731 0	07250 1	07117 1	34516 1	70637 1	60727 0
10,7110	74516 0	10000 0	07114 1	07260 1	03007 0	C: 00201 1	07260 1	30637 0
10,7120	30727 0	50637 0	40000 0	60727 0	10000 0	07211 1	C: 37776 0	07131 0
10,7130	02262 0	34511 0	70727 1	10000 0	07217 1	40727 1	77336 1	10000 0
10,7140	07145 0	36762 1	70723 0	64656 0	07206 1	40637 1	74516 0	70727 1
10,7150	10000 0	07337 1	40637 1	74515 0	10000 0	07165 1	44513 0	70726 0
10,7160	64513 1	50726 1	34505 0	02173 0	C: 30201 1	36762 1	70723 0	64500 0
10,7170	50723 1	40727 1	50034 0	34475 0	50637 0	30034 0	60000 1	50034 0
10,7200	74507 0	10000 0	07243 0	20637 1	37456 1	60723 1	50723 1	02743 0
10,7210	02262 0	67214 1	10000 0	07131 0	C: 77740 1	07131 0	02262 0	37335 0
10,7220	70727 1	60637 0	77335 1	10000 0	07226 0	07233 1	34512 0	70727 1
10,7230	70637 1	10000 0	02262 0	40637 1	74515 0	70727 1	10000 0	07141 1
10,7240	03007 0	C: 00204 1	02262 0	10637 1	07174 1	03007 0	C: 00203 0	02262 0
10,7250	40731 0	60637 0	10000 0	07263 1	C: 37775 0	07263 1	10726 0	07331 1
10,7260	30637 0	50727 0	02262 0	34516 1	70731 0	60000 1	70637 1	10000 0
10,7270	07322 0	37315 1	70731 0	70637 1	40000 0	77315 0	10000 0	07312 0
10,7300	37335 0	70637 1	10000 0	07305 0	07312 0	44516 0	70726 0	64516 1
10,7310	50726 1	07260 1	10727 1	07317 0	07317 0	C: 00060 1	02262 0	10723 0
10,7320	07324 0	07324 0	35501 0	07261 0	45501 1	50727 0	03007 0	C: 00202 1
10,7330	02262 0	44516 0	70726 0	50726 1	07260 1	C: 00014 1	C: 00012 1	45503 0
10,7340	50731 1	37501 1	02173 0	C: 21350 1	36762 1	70723 0	67456 1	07206 1
10,7350	02731 0	10731 0	07356 0	07356 0	35501 0	50731 1	02743 0	02256 1
10,7360	37502 1	02173 0	C: 21372 1	45503 0	50732 1	44664 0	70724 1	64664 1
10,7370	50724 0	07057 1	35501 0	50732 1	02671 0	02743 0	02256 1	74511 1

OCTAL LISTING OF PARAGRAPH # 043, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

10,7400	10000 0	37406 1	67407 0	70012 0	50012 1	00001 0	C: 00767 1	C: 77407 1
10,7410	50577 1	30001 0	50574 1	40600 0	60577 1	50034 0	07423 0	20000 0
10,7420	34477 1	60034 0	00574 1	10577 0	07435 1	07435 1	07427 1	10600 0
10,7430	07443 0	07443 0	07433 1	30034 0	00574 1	10600 0	07433 1	07433 1
10,7440	07441 1	34516 1	07444 1	44516 0	60034 0	50034 0	00574 1	07417 1
10,7450	C: 50400 0	C: 51000 0	C: 52000 0	C: 32000 0	C: 31000 0	C: 30400 0	C: 40011 0	C: 00002 0
10,7460	C: 00004 0	C: 00010 0	C: 01000 0	C: 00000 1	C: 02000 0	C: 00377 1	C: 77407 1	C: 44400 0
10,7470	C: 45000 0	C: 46000 0	C: 00220 1	C: 00240 1	C: 00140 1	C: 00120 1	C: 26000 0	C: 25000 0
10,7500	C: 24400 0	C: 06654 0	C: 13560 0	C: 06022 1	07704 0	20641 0	10000 0	07523 1
10,7510	07512 0	07537 1	40677 0	20000 0	07513 1	07721 1	34475 0	64340 1
10,7520	40000 0	50677 1	07504 1	64516 1	50034 0	06631 0	07672 0	30032 0
10,7530	02173 0	C: 21533 1	02256 1	07704 0	45503 0	06631 0	07512 0	64516 1
10,7540	50034 0	35503 1	06631 0	07672 0	35362 0	10000 0	07545 1	40034 1
10,7550	06631 0	30032 0	02173 0	C: 21512 1	02256 1	07704 0	45503 0	06631 0
10,7560	40677 0	74720 1	20000 0	07562 1	07715 0	34475 0	64340 1	40000 0
10,7570	50677 1	07704 0	20641 0	10000 0	07605 0	07577 0	07615 1	20641 0
10,7600	10001 1	07640 1	07556 0	07650 0	07560 0	20641 0	50000 1	34476 0
10,7610	06631 0	37740 0	02173 0	C: 21571 1	02256 1	40000 0	20641 0	50000 1
10,7620	40677 0	74520 0	64501 1	40000 0	30677 1	74501 0	10000 0	07631 1
10,7630	07636 0	35503 1	06631 0	35503 1	10000 0	07634 1	44476 1	07610 1
10,7640	64516 1	50034 0	06631 0	07672 0	30032 0	02173 0	C: 21555 1	02256 1
10,7650	64516 1	50034 0	40677 0	74501 0	10000 0	07663 0	35503 1	06631 0
10,7660	35362 0	10000 0	07661 1	07672 0	40034 1	06631 0	30032 0	02173 0
10,7670	C: 21560 1	02256 1	30003 1	50032 0	34505 0	25777 1	40034 1	65503 1
10,7700	30032 0	25777 1	44516 0	00001 0	35501 0	50640 0	40677 0	74720 1
10,7710	50637 0	60000 1	60764 1	50641 1	00001 0	34516 1	02173 0	C: 21721 0
10,7720	02256 1	35501 0	50764 1	30007 0	30007 0	77737 1	10000 0	45501 1
10,7730	40000 0	50677 1	37736 1	02060 0	05720 1	C: 30171 0	C: 31533 0	C: 00122 0
10,7740	C: 01001 1	07741 1	07742 1	CKSM 76777 1	@	@	@	@
10,7750	@	@	@	@	@	@	@	@
10,7760	@	@	@	@	@	@	@	@
10,7770	@	@	@	@	@	@	@	@

OCTAL LISTING OF PARAGRAPH # 044, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

11,6000	C: 37767 0	C: 00320 0	C: 06401 1	C: 00060 1	C: 01774 1	C: 25252 0	C: 01771 1	C: 00501 0
11,6010	C: 23037 1	30115 1	06014 1	30001 0	51764 0	03007 0	C: 01102 0	31765 1
11,6020	64516 1	31765 1	03000 1	30001 0	50115 1	30001 0	10000 0	06011 1
11,6030	06011 1	06011 1	00001 0	40000 0	30001 0	50115 1	30001 0	10000 0
11,6040	06011 1	06011 1	10000 0	06011 1	00001 0	20016 1	44515 0	10000 0
11,6050	06013 0	06013 0	06054 0	06013 0	10000 0	06061 0	06013 0	06013 0
11,6060	06013 0	10000 0	06013 0	06066 1	06013 0	06013 0	40000 0	10000 0
11,6070	06013 0	06013 0	06013 0	10000 0	06013 0	06100 0	06013 0	06013 0
11,6100	06102 1	06103 0	00001 0	35777 0	51771 1	71771 0	31771 1	61771 1
11,6110	25777 1	41771 0	25777 1	51771 1	41771 0	51772 1	21771 0	61772 1
11,6120	51772 1	11772 0	06013 0	06013 0	06013 0	11772 0	06013 0	06013 0
11,6130	06013 0	36147 0	51771 1	36150 0	51772 1	36151 1	51773 0	36152 1
11,6140	51774 1	36153 0	51775 0	36154 1	51776 0	34501 1	01771 1	25777 1
11,6150	44515 0	60000 1	10000 0	01771 1	06155 0	34510 1	30003 1	30003 1
11,6160	50003 1	60003 1	20003 0	25767 0	60003 1	40003 0	70003 0	40000 0
11,6170	06034 0	10003 0	06176 1	06013 0	06013 0	06013 0	10003 0	06013 0
11,6200	06013 0	06203 0	06013 0	10003 0	06013 0	06210 1	06013 0	06013 0
11,6210	34514 0	50003 1	34476 0	25777 1	40003 0	60003 1	51771 1	34476 0
11,6220	25777 1	44340 0	60003 1	61771 1	06023 0	44476 1	25777 1	44340 0
11,6230	60003 1	51771 1	44476 1	25777 1	44515 0	60003 1	61771 1	06023 0
11,6240	34476 0	25777 1	66421 0	06033 1	36557 0	50001 0	34502 1	25777 1
11,6250	50001 0	51771 1	30003 1	51772 1	40001 1	25777 1	56560 1	61771 1
11,6260	51775 0	30003 1	51773 0	30001 0	25777 1	56560 1	51771 1	30003 1
11,6270	51774 1	30001 0	25777 1	56557 0	61771 1	51771 1	40003 0	61771 1
11,6300	61772 1	61773 0	61774 1	61775 0	06033 1	34516 1	50034 0	64476 0
11,6310	51771 1	06013 0	61771 1	60034 0	50034 0	40000 0	25777 1	66376 0
11,6320	51771 1	06013 0	61771 1	60034 0	06033 1	20017 0	35501 0	50024 1
11,6330	20016 1	60036 1	51771 1	41771 0	60036 1	10000 0	10000 0	06325 0
11,6340	06342 1	06333 1	36001 0	10000 0	06343 0	20017 0	10024 0	06325 0
11,6350	34516 1	02173 0	C: 22401 1	34476 0	66000 1	20016 1	10000 0	64515 1
11,6360	06362 0	06374 1	25777 1	65504 0	30000 1	25501 1	40000 0	70000 0
11,6370	40000 0	50000 1	06013 0	06356 1	20017 0	51771 1	C: 37775 0	20016 1

OCTAL LISTING OF PARAGRAPH # 045, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

11,6400	06410 1	40024 0	66002 0	06023 0	31766 1	64516 1	31766 1	02256 1
11,6410	11762 1	03000 1	03000 1	06414 0	44476 1	51775 0	50001 0	10001 1
11,6420	06434 1	C: 37776 0	06424 0	06443 1	61775 0	06034 0	10215 0	07377 0
11,6430	41775 1	65504 0	51774 1	06416 1	40000 0	51775 0	61774 1	06033 1
11,6440	41775 1	40000 0	06416 1	51777 1	34476 0	60000 1	64516 1	20017 0
11,6450	30001 0	10001 1	51776 0	06466 0	20016 1	61777 1	51777 1	06461 1
11,6460	06013 0	10215 0	07377 0	34476 0	61776 0	06446 1	40000 0	20016 1
11,6470	61777 1	06023 0	36004 0	51777 1	20016 1	11777 0	51777 1	20017 0
11,6500	21777 0	40001 1	40000 0	51776 0	21777 0	40000 0	40000 0	51775 0
11,6510	41777 0	40000 0	51760 1	21777 0	50000 1	64516 1	21777 0	50001 0
11,6520	21777 0	40001 1	21777 0	60000 1	06034 0	41777 0	21777 0	50000 1
11,6530	64335 0	21777 0	50001 0	21777 0	40000 0	21777 0	60001 0	06034 0
11,6540	41776 1	40000 0	21777 0	50001 0	41775 1	40000 0	21777 0	50000 1
11,6550	45504 1	51760 1	10215 0	07377 0	41777 0	66003 1	10000 0	C: 14000 1
11,6560	C: 63777 0	06474 0	20016 1	33220 1	51771 1	64512 0	20000 0	40000 0
11,6570	11771 0	06564 0	36005 1	50020 0	50022 1	50021 1	50023 0	60020 0
11,6600	60022 1	60021 1	60023 0	64664 1	06034 0	31767 0	64516 1	31767 0
11,6610	11762 1	06414 0	03000 1	03000 1	06646 0	C: 02000 0	C: 04000 0	C: 06000 1
11,6620	C: 10000 0	C: 12000 1	C: 14000 1	C: 16000 0	C: 20000 0	C: 22000 1	C: 24000 1	C: 26000 0
11,6630	C: 30000 1	C: 42000 1	C: 44000 1	C: 46000 0	C: 50000 1	C: 52000 0	C: 54000 0	C: 56000 1
11,6640	C: 60000 1	C: 62000 0	C: 64000 0	C: 66000 1	C: 70000 0	C: 00000 1	44516 0	51761 0
11,6650	37023 1	51776 0	36615 0	51773 0	36766 0	51774 1	34516 1	51777 1
11,6660	35501 0	51771 1	34515 1	51775 0	21773 1	30000 1	06774 0	06721 0
11,6670	51777 1	37024 0	51776 0	36616 0	51773 0	06660 1	34515 1	51775 0
11,6700	35501 0	51771 1	51773 0	61773 0	21774 0	60000 1	05730 0	06774 0
11,6710	66617 1	06721 0	31773 0	64516 1	51773 0	11777 0	06664 0	06664 0
11,6720	06703 0	10000 0	06730 0	06730 0	06730 0	11775 1	51775 0	06735 0
11,6730	11775 1	06733 0	06743 1	34515 1	51775 0	10215 0	07377 0	41773 1
11,6740	61776 0	50000 1	06712 0	11761 1	07037 1	06750 0	07005 0	06034 0
11,6750	31774 1	64516 1	51774 1	11777 0	06670 0	06756 0	44516 0	51777 1
11,6760	36772 0	51776 0	21774 0	40000 0	10000 0	06676 0	C: 06615 0	06676 0
11,6770	11761 1	07025 1	C: 41776 1	07102 0	51772 1	61771 1	51771 1	35501 0

OCTAL LISTING OF PARAGRAPH # 046, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

11,7000	61771 1	51771 1	41772 0	61773 0	00001 0	30001 0	50115 1	11771 0
11,7010	07014 0	06013 0	07014 0	06013 0	51771 1	21774 0	30000 1	03203 0
11,7020	40000 0	61771 1	00115 1	C: 43776 0	C: 45776 0	34516 1	51761 0	35501 0
11,7030	51762 0	20017 0	34504 1	02052 1	C: 22650 1	20016 1	02124 1	21774 0
11,7040	30000 1	03203 0	51772 1	11777 0	07054 1	07054 1	41773 1	40000 0
11,7050	21774 0	60000 1	05730 0	07056 0	21773 1	30000 1	51773 0	03302 0
11,7060	03310 0	36006 1	50117 0	36007 0	03100 0	07100 1	05654 0	C: 14000 1
11,7070	03136 0	07074 0	07076 1	07061 1	03362 0	02124 1	03362 0	06750 0
11,7100	36010 0	03320 0	11762 1	07107 0	07367 1	03000 1	07113 0	31770 0
11,7110	64516 1	31770 0	06646 0	34476 0	51772 1	34476 0	25777 1	41772 0
11,7120	60003 1	40000 0	64476 0	06023 0	10215 0	07377 0	11772 0	51772 1
11,7130	11772 0	07115 0	34476 0	51772 1	34335 0	25777 1	41772 0	60003 1
11,7140	61772 1	06023 0	10215 0	07377 0	11772 0	51772 1	11772 0	07134 0
11,7150	34476 0	51771 1	41771 0	40000 0	25777 1	44476 1	60003 1	40000 0
11,7160	64476 0	06023 0	10215 0	07377 0	11771 0	51771 1	11771 0	07152 0
11,7170	34476 0	51771 1	41771 0	40000 0	25777 1	44335 1	60003 1	61771 1
11,7200	06023 0	10215 0	07377 0	11771 0	51771 1	11771 0	07172 1	07212 1
11,7210	C: 37776 0	C: 50001 0	36004 0	51777 1	36557 0	50001 0	34502 1	25777 1
11,7220	50001 0	51771 1	30003 1	51772 1	40001 1	25777 1	56560 1	61771 1
11,7230	51775 0	30003 1	51773 0	30001 0	25777 1	56560 1	51771 1	30003 1
11,7240	51774 1	30001 0	25777 1	56557 0	61771 1	51771 1	40003 0	61771 1
11,7250	61772 1	61773 0	61774 1	61775 0	06033 1	34516 1	51772 1	25777 1
11,7260	54501 1	51773 0	60001 0	50020 0	40020 1	61772 1	60003 1	06033 1
11,7270	41773 1	60000 1	50000 1	07275 0	07300 0	31773 0	64516 1	07256 1
11,7300	44476 1	50020 0	40020 1	40000 0	25777 1	54476 0	51774 1	60001 0
11,7310	06023 0	11774 0	10000 0	07302 1	37210 0	25777 1	57210 0	60001 0
11,7320	06033 1	30003 1	51775 0	47210 1	51774 1	37210 0	25777 1	51774 1
11,7330	40000 0	60001 0	06033 1	60003 1	61775 0	51775 0	47210 1	25777 1
11,7340	57210 0	40000 0	60001 0	06033 1	40003 0	61775 0	51775 0	47210 1
11,7350	51774 1	25777 1	51774 1	60001 0	06033 1	40003 0	61775 0	06034 0
11,7360	10215 0	07377 0	11777 0	07365 0	07367 1	51777 1	07214 1	31770 0
11,7370	64516 1	31770 0	11762 1	07113 0	03000 1	03000 1	03000 1	30001 0

OCTAL LISTING OF PARAGRAPH # 050, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

12,6000	45501 1	50677 1	05654 0	C: 30000 1	35501 0	51400 1	64516 1	50620 0
12,6010	37740 0	03100 0	03315 0	21400 0	31346 1	50616 0	21400 0	31350 0
12,6020	50617 1	07162 0	C: 00661 0	07406 1	30616 0	21400 0	51346 1	30617 1
12,6030	21400 0	51350 0	11400 0	06036 1	34516 1	06005 1	51213 0	51313 1
12,6040	50035 1	51224 1	67741 1	51307 1	05654 0	C: 70515 1	05654 0	C: 70552 1
12,6050	37742 1	03100 0	03315 0	03136 0	07406 1	06050 1	30616 0	51223 0
12,6060	40000 0	74514 1	10000 0	06065 1	07107 0	34516 1	51305 0	05654 0
12,6070	C: 70241 1	05654 0	C: 30331 0	07406 1	05654 0	C: 71037 0	05654 0	C: 70444 1
12,6100	11213 1	06103 0	06106 0	10215 0	02101 0	06100 0	07331 1	05654 0
12,6110	C: 30143 1	05654 0	C: 30331 0	07406 1	35501 0	51305 0	05654 0	C: 70241 1
12,6120	03362 0	05654 0	C: 70461 0	05654 0	C: 30331 0	07406 1	05654 0	C: 71515 0
12,6130	11313 0	06126 1	06134 1	07406 1	20017 0	07277 1	20016 1	35501 0
12,6140	50044 1	50045 0	50046 0	51230 1	51224 1	05654 0	C: 70660 0	20017 0
12,6150	37743 0	02173 0	C: 24155 0	36202 1	02127 1	36202 1	02060 0	02256 1
12,6160	41226 1	51221 1	06613 0	20016 1	05654 0	C: 70660 0	41227 0	51221 1
12,6170	06613 0	20016 1	05654 0	C: 70660 0	20017 0	37744 1	02173 0	C: 24155 0
12,6200	36202 1	02127 1	C: 24160 0	37742 1	03100 0	03315 0	03136 0	07406 1
12,6210	06211 0	30616 0	51561 1	51570 1	03362 0	34502 1	51316 1	51214 1
12,6220	34475 0	51231 0	11561 0	51561 1	06231 1	51561 1	46365 0	51562 1
12,6230	06233 0	36365 1	51562 1	41561 0	65503 1	51566 0	10000 0	34516 1
12,6240	06243 1	06242 0	34473 0	51223 0	06540 0	41566 1	40000 0	10000 0
12,6250	21561 0	40047 0	06254 1	40047 0	51565 0	41561 0	40000 0	61561 1
12,6260	51567 1	36366 1	51571 0	20017 0	36367 0	02173 0	C: 24313 0	20016 1
12,6270	34477 1	51563 0	35501 0	21563 1	51234 0	11563 1	06271 0	41562 0
12,6300	40000 0	21567 0	51235 1	36370 0	05654 0	C: 31347 0	05654 0	C: 30331 0
12,6310	07406 1	36371 1	02127 1	36371 1	02060 0	02256 1	11571 1	06262 1
12,6320	41566 1	40000 0	10000 0	21561 0	40047 0	06327 1	40047 0	51566 0
12,6330	11570 0	41565 1	06336 1	41566 1	51566 0	06337 0	51565 0	20017 0
12,6340	41566 1	40000 0	50600 1	41565 1	05654 0	C: 21410 1	20016 1	51564 1
12,6350	25777 1	44477 0	40003 0	50616 0	03302 0	03310 0	05654 0	C: 14000 1
12,6360	37745 0	03100 0	03315 0	03136 0	07406 1	C: 00400 0	C: 07777 1	C: 00030 1
12,6370	C: 01235 1	C: 24316 0	34502 1	51316 1	03362 0	35501 0	51317 0	34475 0

OCTAL LISTING OF PARAGRAPH # 051, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

12,6400	51231 0	34513 1	51223 0	40000 0	51214 1	06540 0	05654 0	C: 30205 0
12,6410	05654 0	C: 30331 0	07406 1	05654 0	C: 30216 1	05654 0	C: 30331 0	07406 1
12,6420	05654 0	C: 30143 1	35501 0	50044 1	50045 0	50046 0	05654 0	C: 30331 0
12,6430	07406 1	34516 1	51224 1	51223 0	35503 1	51221 1	20017 0	06613 0
12,6440	40045 1	40000 0	21223 1	51300 0	40046 1	40000 0	21223 1	51302 1
12,6450	20016 1	07235 1	31224 1	64477 1	51224 1	11221 0	06435 0	11223 1
12,6460	06462 1	06470 1	51223 0	34511 0	07355 0	11220 1	07377 0	06434 1
12,6470	35501 0	51242 1	51247 1	51254 0	31300 0	51305 0	35501 0	31302 1
12,6500	51307 1	35503 1	51261 0	51266 1	51273 0	51304 1	51306 0	05654 0
12,6510	C: 71365 1	35501 0	51232 0	34511 0	51231 0	35501 0	51214 1	34516 1
12,6520	51223 0	05654 0	C: 70515 1	07226 0	05654 0	C: 25205 1	03362 0	11231 1
12,6530	06536 1	06534 0	33232 1	06537 0	34475 0	06537 0	35501 0	51231 0
12,6540	45501 1	50677 1	40000 0	51216 0	05654 0	C: 30000 1	05654 0	C: 30331 0
12,6550	07406 1	05654 0	C: 71131 1	05654 0	C: 70444 1	05654 0	C: 30143 1	05654 0
12,6560	C: 30331 0	07406 1	40047 0	40000 0	27755 0	50006 1	40050 0	40000 0
12,6570	27755 0	50002 0	40051 1	40000 0	27755 0	50004 0	05654 0	C: 70732 0
12,6600	11214 0	06245 1	06604 0	06406 0	05654 0	C: 71576 0	37746 0	51215 0
12,6610	45501 1	51232 0	06513 0	30001 0	31225 0	20016 1	10215 0	02101 0
12,6620	20017 0	35501 0	21221 0	30044 1	51230 1	11230 0	06632 0	06676 0
12,6630	06645 0	06676 0	34511 0	51222 1	21221 0	10044 0	06660 1	06642 1
12,6640	06676 0	06642 1	11222 0	06633 1	06676 0	34511 0	51222 1	21221 0
12,6650	10044 0	06676 0	06655 1	06660 1	06655 1	11222 0	06646 0	06676 0
12,6660	07277 1	34513 1	51222 1	21221 0	10044 0	06671 1	06676 0	06671 1
12,6670	06676 0	11222 0	06662 0	06700 0	51230 1	01225 0	06700 0	06615 0
12,6700	31230 1	21221 0	60044 1	21221 0	50044 1	00001 0	20017 0	06613 0
12,6710	20016 1	35502 0	61224 1	51224 1	07235 1	11220 1	06734 1	05654 0
12,6720	C: 71207 1	11232 1	06751 1	07416 0	06751 1	34516 1	51220 0	35501 0
12,6730	21221 0	50044 1	51224 1	06706 0	51220 0	20017 0	41215 1	40000 0
12,6740	02173 0	C: 24745 1	20016 1	36750 0	02127 1	36750 0	02060 0	02256 1
12,6750	C: 24706 0	11216 1	07066 0	35501 0	51424 1	51432 0	51440 0	34511 0
12,6760	51230 1	07061 1	11230 0	06760 0	35501 0	21233 0	50047 1	34511 0
12,6770	51230 1	21233 0	10047 0	07003 0	06777 0	06760 0	07003 0	11230 0

OCTAL LISTING OF PARAGRAPH # 052, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

12,7000	06770 1	07061 1	06767 1	02676 1	20016 1	40572 0	51242 1	40573 1
12,7010	51243 0	34473 0	51230 1	07061 1	11230 0	07012 0	21233 0	10047 0
12,7020	07024 0	06760 0	06760 0	07032 1	41232 1	10000 0	07101 0	30000 1
12,7030	47747 0	07037 1	41232 1	10000 0	07101 0	30000 1	37747 1	21233 0
12,7040	50047 1	07061 1	34511 0	51230 1	21233 0	10047 0	07052 1	07055 0
12,7050	07052 1	07055 0	11230 0	07043 1	07041 0	34510 1	21233 0	50047 1
12,7060	07066 0	30001 0	51225 0	05654 0	C: 71515 0	01225 0	21233 0	30047 1
12,7070	51215 0	02676 1	20016 1	40572 0	51244 1	40573 1	51245 0	05654 0
12,7100	C: 71241 0	37757 0	51230 1	34516 1	51216 0	05654 0	C: 71614 1	30001 0
12,7110	51225 0	07113 0	51224 1	21224 0	41432 1	40000 0	50616 0	21224 0
12,7120	41433 0	40000 0	50617 1	41224 0	40000 0	67152 0	50620 0	05654 0
12,7130	C: 14000 1	37740 0	03100 0	03315 0	37745 0	03100 0	03315 0	03136 0
12,7140	07406 1	07143 0	07113 0	41224 0	63232 1	10000 0	C: 35503 1	61224 1
12,7150	07112 1	01225 0	C: 01432 0	05706 0	51574 0	07162 0	C: 00661 0	07406 1
12,7160	31574 0	05723 1	30001 0	51310 1	21310 0	30000 1	03100 0	07202 0
12,7170	05654 0	C: 14000 1	03136 0	07176 0	07200 1	07164 0	21310 0	00001 0
12,7200	21310 0	00002 0	37204 0	03320 0	C: 25164 0	05706 0	51573 1	41223 1
12,7210	40000 0	50623 0	05654 0	C: 14000 1	37751 0	03100 0	03315 0	03136 0
12,7220	07406 1	07224 1	07226 0	07207 0	31573 1	05723 1	41231 1	40000 0
12,7230	50621 1	41232 1	40000 0	50622 1	00001 0	41230 0	40000 0	21224 0
12,7240	51242 1	40115 0	40000 0	21224 0	51243 0	40116 0	40000 0	21224 0
12,7250	51244 1	40117 1	40000 0	21224 0	51245 0	00001 0	05654 0	C: 25205 1
12,7260	34511 0	51231 0	34516 1	61223 0	51223 0	41223 1	67752 0	10000 0
12,7270	07272 1	07406 1	20017 0	34501 1	02046 1	C: 24523 0	02124 1	30001 0
12,7300	51310 1	40035 0	40000 0	50115 1	40036 0	40000 0	50116 1	20017 0
12,7310	02712 1	20016 1	50117 0	10000 0	07323 1	40035 0	40000 0	50115 1
12,7320	40036 0	40000 0	50116 1	30117 0	25777 1	44504 0	30003 1	50117 0
12,7330	01310 1	30001 0	51225 0	34477 1	50034 0	35501 0	20034 1	51520 1
12,7340	10034 1	07334 1	01225 0	30001 0	51225 0	34477 1	50034 0	35501 0
12,7350	20034 1	51114 1	10034 1	07346 1	01225 0	30001 0	51225 0	40001 1
12,7360	51220 0	11220 1	07366 0	01225 0	07366 0	07360 0	20017 0	34504 1
12,7370	02173 0	C: 25403 1	20016 1	11220 1	01225 0	01225 0	30000 1	51220 0

OCTAL LISTING OF PARAGRAPH # 054, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

13,6000	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1
13,6010	C: 00000 1	C: 00000 1	C: 12000 1	C: 66621 1	C: 00000 1	C: 00000 1	C: 12000 1	C: 66412 0
13,6020	C: 00000 1	C: 00000 1	C: 12000 1	C: 66404 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1
13,6030	C: 77777 0	C: 77777 0	C: 01563 0	C: 64066 0	C: 77777 0	C: 77777 0	C: 01572 0	C: 64250 1
13,6040	C: 00000 1	C: 00000 1	C: 77777 0	C: 64771 1	C: 01274 1	C: 65110 1	C: 00000 1	C: 00000 1
13,6050	C: 02032 1	C: 65124 0	C: 00000 1	C: 00000 1	C: 02063 0	C: 65135 0	C: 00000 1	C: 00000 1
13,6060	C: 00113 1	C: 31550 0	C: 00000 1	C: 00000 1	C: 00310 0	C: 65121 0	C: 00000 1	C: 00000 1
13,6070	C: 00000 1	C: 00000 1	C: 77777 0	C: 65070 0	C: 00000 1	C: 00000 1	C: 27000 1	C: 67060 0
13,6100	C: 00764 1	C: 67260 1	C: 00000 1	C: 00000 1	C: 01750 1	C: 67342 0	C: 20000 0	C: 67274 1
13,6110	C: 01750 1	C: 67342 0	C: 20000 0	C: 67330 0	C: 01750 1	C: 67342 0	C: 00000 1	C: 00000 1
13,6120	C: 02734 0	C: 67355 0	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 15000 0	C: 63515 0
13,6130	C: 00000 1	C: 00000 1	C: 20000 0	C: 42142 0	C: 00000 1	C: 00000 1	C: 20000 0	C: 42151 1
13,6140	C: 00000 1	C: 00000 1	C: 20000 0	C: 42266 0	C: 00000 1	C: 00000 1	C: 77777 0	C: 42216 1
13,6150	C: 00062 0	C: 42262 1	C: 21000 1	C: 42266 0	C: 00062 0	C: 42262 1	C: 00000 1	C: 00000 1
13,6160	C: 00310 0	C: 67166 1	C: 00000 1	C: 00000 1	C: 00536 1	C: 67177 1	C: 00000 1	C: 00000 1
13,6170	C: 01046 1	C: 67177 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 05000 1	C: 64074 0
13,6200	C: 00000 1	C: 00000 1	C: 77777 0	C: 64250 1	C: 00000 1	C: 00000 1	C: 34000 0	C: 66202 1
13,6210	C: 77777 0	C: 77777 0	C: 01461 0	C: 64710 0	C: 02032 1	C: 50114 0	C: 77777 0	C: 65022 1
13,6220	C: 77776 1	C: 45317 0	C: 00000 1	C: 00000 1	C: 34430 1	C: 50154 1	C: 00000 1	C: 00000 1
13,6230	C: 77777 0	C: 01556 0	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 77777 0	C: 50201 1
13,6240	C: 26354 1	C: 50335 1	C: 06000 1	C: 50225 1	C: 26354 1	C: 50335 1	C: 06000 1	C: 50322 1
13,6250	C: 01130 1	C: 64511 0	C: 77777 0	C: 65045 0	C: 00310 0	C: 64025 1	C: 00000 1	C: 00000 1
13,6260	C: 00252 1	C: 64374 0	C: 25000 0	C: 64363 0	C: 23336 0	C: 64527 0	C: 77777 0	C: 64761 0
13,6270	C: 01130 1	C: 64511 0	C: 77777 0	C: 65062 0	C: 00372 1	C: 64527 0	C: 25000 0	C: 64474 1
13,6300	C: 01046 1	C: 64527 0	C: 25000 0	C: 64440 0	C: 25060 0	C: 64511 0	C: 00000 1	C: 00000 1
13,6310	C: 00000 1	C: 00000 1	C: 77777 0	C: 64527 0	C: 00031 0	C: 64545 1	C: 00000 1	C: 00000 1
13,6320	C: 00062 0	C: 64562 1	C: 00000 1	C: 00000 1	C: 01750 1	C: 64663 0	C: 25000 0	C: 64423 0
13,6330	C: 00000 1	C: 00000 1	C: 77777 0	C: 64654 1	C: 00536 1	C: 64710 0	C: 77777 0	C: 64633 0
13,6340	C: 00000 1	C: 00000 1	C: 77777 0	C: 64511 0	C: 02176 0	C: 64527 0	C: 00000 1	C: 00000 1
13,6350	C: 00000 1	C: 00000 1	C: 12000 1	C: 57101 0	C: 27340 0	C: 50357 0	C: 00000 1	C: 00000 1
13,6360	C: 00000 1	C: 00000 1	C: 77777 0	C: 64774 1	C: 26354 1	C: 50335 1	C: 06000 1	C: 50263 0
13,6370	C: 21450 0	C: 50463 0	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 77777 0	C: 64062 1

OCTAL LISTING OF PARAGRAPH # 055, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

13,6400	C: 00000 1	C: 00000 1	C: 77777 0	C: 64054 1	C: 00000 1	C: 00000 1	C: 77777 0	C: 64710 0
13,6410	C: 00310 0	C: 65226 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 77777 0	C: 65157 1
13,6420	C: 00310 0	C: 65226 1	C: 17000 1	C: 65276 1	C: 00310 0	C: 65226 1	C: 17000 1	C: 61620 1
13,6430	C: 00310 0	C: 65226 1	C: 17000 1	C: 66014 1	C: 00310 0	C: 65226 1	C: 35000 1	C: 50477 0
13,6440	C: 00000 1	C: 00000 1	C: 77777 0	C: 66676 0	C: 00310 0	C: 66666 1	C: 14000 1	C: 66713 1
13,6450	C: 00310 0	C: 66666 1	C: 13000 0	C: 61620 1	C: 00000 1	C: 00000 1	C: 12000 1	C: 66734 1
13,6460	C: 00310 0	C: 66666 1	C: 00000 1	C: 00000 1	C: 00310 0	C: 56001 0	C: 00000 1	C: 00000 1
13,6470	C: 00000 1	C: 00000 1	C: 77777 0	C: 56011 1	C: 00310 0	C: 56001 0	C: 17000 1	C: 56036 1
13,6500	C: 00310 0	C: 56001 0	C: 17000 1	C: 56052 0	C: 00310 0	C: 56001 0	C: 16000 0	C: 61620 1
13,6510	C: 00310 0	C: 56001 0	C: 17000 1	C: 56057 0	C: 00310 0	C: 56001 0	C: 17000 1	C: 56174 0
13,6520	C: 00310 0	C: 56001 0	C: 17000 1	C: 61441 1	C: 00000 1	C: 00000 1	C: 34000 0	C: 13150 1
13,6530	C: 00000 1	C: 26531 1	C: 00000 1	C: 26533 0	C: 00000 1	C: 26535 0	C: 00000 1	C: 26537 1
13,6540	C: 00310 0	C: 65226 1	C: 17000 1	C: 65551 0	C: 00310 0	C: 65226 1	C: 17000 1	C: 55744 0
13,6550	C: 00310 0	C: 65226 1	C: 17000 1	C: 61620 1	C: 00000 1	C: 00000 1	00000 1	00024 1
13,6560	00200 0	00404 1	00550 1	30115 1	60000 1	60000 1	20120 0	66555 1
13,6570	50115 1	36607 0	50123 1	33224 0	50121 0	20115 0	36000 1	10000 0
13,6600	06636 1	06676 0	06613 0	20115 0	36001 0	10000 0	06625 0	06676 0
13,6610	06612 1	06664 0	44516 0	64516 1	50116 1	20115 0	46001 1	50117 0
13,6620	05742 0	C: 26724 1	05742 0	C: 10552 1	06676 0	50117 0	20000 0	40001 1
13,6630	40000 0	50116 1	20117 1	40002 1	40000 0	06617 1	64516 1	40000 0
13,6640	50117 0	20115 0	36001 0	50122 0	20120 0	40663 0	25777 1	60036 1
13,6650	10000 0	40000 0	66663 1	64516 1	60117 0	10000 0	35501 0	06661 0
13,6660	06661 0	64516 1	00121 0	C: 37776 0	36707 1	50123 1	20115 0	36003 1
13,6670	50122 0	20115 0	26002 1	40000 0	50117 0	06644 1	20115 0	36003 1
13,6700	50122 0	36707 1	50123 1	20115 0	36002 0	10000 0	06713 1	05702 1
13,6710	06720 1	64516 1	00121 0	64516 1	50121 0	33226 1	30121 0	00121 0
13,6720	20000 0	40001 1	50117 0	06644 1	02677 0	35501 0	61463 1	60573 0
13,6730	60117 0	51461 0	35501 0	61462 0	60572 1	60116 1	31460 1	11460 0
13,6740	05761 1	06743 1	06746 1	11461 1	05761 1	06746 1	35501 0	51460 1
13,6750	34516 1	51461 0	05761 1	03430 0	C: 20000 0	47174 0	06762 1	34515 1
13,6760	06762 1	34516 1	50115 1	02346 1	C: 00024 1	07062 1	40612 0	51116 0
13,6770	36754 1	70646 1	10000 0	07203 1	32567 1	50672 1	30115 1	51117 1

OCTAL LISTING OF PARAGRAPH # 056, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

13,7000	02362 1	C: 00027 1	47132 1	51122 1	03302 0	03310 0	34516 1	51123 0
13,7010	41122 0	50117 0	37201 0	03100 0	03315 0	03136 0	07167 0	07010 1
13,7020	44516 0	61122 1	51122 1	02346 1	C: 00027 1	07167 0	41123 1	61117 1
13,7030	10000 0	40000 0	61117 1	07007 1	37202 0	50117 0	37055 0	03100 0
13,7040	03315 0	03136 0	07167 0	07066 0	11122 0	07051 1	07034 1	07034 1
13,7050	07034 1	41117 0	61122 1	10000 0	07034 1	C: 02102 0	30000 1	11122 0
13,7060	67132 0	07011 0	02346 1	C: 00014 1	07203 1	06766 0	11117 0	10000 0
13,7070	07143 0	20017 0	31074 0	61100 1	50117 0	35501 0	61073 1	50116 1
13,7100	35501 0	50115 1	05654 0	C: 07154 0	35501 0	50616 0	41100 0	50617 1
13,7110	30116 1	51073 1	30117 0	51074 0	20017 0	40645 1	74511 1	50001 0
13,7120	44511 1	70645 1	60001 0	50645 0	20016 1	02346 1	C: 00027 1	07133 1
13,7130	41116 1	02364 1	C: 01100 1	32566 0	50672 1	03362 0	11117 0	10000 0
13,7140	02124 1	05720 1	C: 12511 1	10000 0	07152 0	31100 1	51676 1	31101 0
13,7150	51677 0	07114 1	03416 1	C: 20000 0	34513 1	71116 1	10000 0	07114 1
13,7160	41114 0	40000 0	51671 0	41115 1	40000 0	51672 0	07114 1	02346 1
13,7170	C: 00027 1	07175 0	41116 1	02364 1	C: 77761 1	32566 0	50672 1	03362 0
13,7200	02124 1	C: 02101 0	C: 01122 1	05720 1	C: 12062 0	30006 1	10006 0	07211 1
13,7210	07206 1	10006 0	07211 1	50042 1	07310 1	C: 00035 1	07310 1	C: 00052 0
13,7220	35501 0	10000 0	07221 1	34516 1	02173 0	C: 42240 1	07310 1	C: 00027 1
13,7230	34516 1	02173 0	C: 27332 0	07310 1	C: 00013 0	10037 1	07235 1	34516 1
13,7240	02173 0	C: 27333 1	07310 1	C: 00065 1	35503 1	02173 0	C: 27334 0	35503 1
13,7250	02173 0	C: 03225 1	07310 1	C: 00023 0	07311 0	C: 00030 1	07310 1	C: 00025 0
13,7260	34516 1	02173 0	C: 27340 0	34516 1	02173 0	C: 27342 1	35503 1	02173 0
13,7270	C: 27343 0	07310 1	C: 00023 0	07311 0	C: 00001 0	34477 1	50115 1	20016 1
13,7300	20017 0	40115 0	65362 0	02173 0	C: 27344 1	10115 0	07276 0	07307 1
13,7310	20016 1	30001 0	50115 1	20000 0	40000 0	64522 0	64522 0	50116 1
13,7320	10042 0	07320 1	30116 1	50042 1	37331 1	50012 1	20017 0	20115 0
13,7330	00001 0	C: 26000 0	02256 1	02256 1	37345 1	10000 0	07335 0	02256 1
13,7340	37346 1	07335 0	02256 1	02256 1	02256 1	C: 00115 1	C: 00116 1	07347 0
13,7350	07350 0	CKSM 40210 0	@	@	@	@	@	@
13,7360	@	@	@	@	@	@	@	@
13,7370	@	@	@	@	@	@	@	@

OCTAL LISTING OF PARAGRAPH # 060, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

14,6000	44516 0	50677 1	06245 1	C: 00051 0	C: 40011 0	02773 0	44513 0	70726 0
14,6010	64513 1	50726 1	34505 0	02173 0	C: 30201 1	36077 1	02173 0	C: 30022 1
14,6020	20016 1	05702 1	02731 0	06070 0	06246 1	C: 00050 1	C: 40010 1	36101 1
14,6030	02173 0	C: 30033 1	02256 1	06070 0	06246 1	C: 00060 1	C: 41000 1	36103 0
14,6040	02173 0	C: 30043 0	02256 1	06070 0	34502 1	50700 0	50701 1	50702 1
14,6050	35501 0	50677 1	36102 1	02173 0	C: 30056 1	02256 1	06070 0	06246 1
14,6060	C: 00050 1	C: 40010 1	44516 0	50677 1	36100 0	02173 0	C: 30171 0	02256 1
14,6070	10727 1	00001 0	06264 1	00001 0	06264 1	C: 21450 0	C: 10624 0	C: 06654 0
14,6100	C: 03720 1	C: 01750 1	C: 00310 0	C: 00040 0	06245 1	C: 00042 1	C: 40002 1	02743 0
14,6110	36103 0	02173 0	C: 30125 1	06020 0	40047 0	40000 0	50700 0	40050 0
14,6120	40000 0	50701 1	40051 1	40000 0	50702 1	06070 0	35501 0	50677 1
14,6130	36076 0	02173 0	C: 30214 0	02256 1	06245 1	C: 00042 1	C: 40002 1	36103 0
14,6140	02173 0	C: 30114 0	06160 0	06245 1	C: 00050 1	C: 40010 1	44513 0	70726 0
14,6150	64513 1	50726 1	34505 0	02173 0	C: 30201 1	36075 0	02173 0	C: 30171 0
14,6160	44516 0	50677 1	06020 0	06757 1	06245 1	C: 00050 1	C: 40010 1	36103 0
14,6170	06156 0	03430 0	C: 02000 0	06264 1	34503 0	70726 0	10000 0	06305 1
14,6200	06314 1	44513 0	70726 0	50726 1	02256 1	06245 1	C: 00044 1	C: 40004 1
14,6210	36103 0	02173 0	C: 30214 0	06160 0	06264 1	06314 1	06757 1	06245 1
14,6220	C: 00140 1	C: 42000 1	06227 0	06757 1	06245 1	C: 00060 1	C: 41000 1	36103 0
14,6230	02173 0	C: 30233 0	06160 0	03430 0	C: 02000 0	06264 1	35501 0	50677 1
14,6240	06314 1	06245 1	C: 00000 1	C: 40010 1	06160 0	20017 0	20001 1	30000 1
14,6250	50731 1	36260 0	70723 0	20001 1	60001 0	50723 1	20001 1	00002 0
14,6260	C: 34760 1	35503 1	64476 0	50034 0	35501 0	50640 0	30001 0	50637 0
14,6270	20640 1	10733 1	06274 0	06300 1	34516 1	20640 1	30733 0	02060 0
14,6300	20640 1	10727 1	00637 0	06305 1	00637 0	20640 1	10733 1	06311 1
14,6310	40000 0	20640 1	50733 0	02256 1	20640 1	10733 1	06321 1	44516 0
14,6320	06311 1	20601 1	30120 1	64335 0	20601 1	30120 1	06311 1	34516 1
14,6330	06332 0	35501 0	20017 0	50640 0	20000 0	10733 1	06357 0	06352 0
14,6340	06344 1	20640 1	50733 0	06020 0	10000 0	06357 0	30071 1	64516 1
14,6350	30071 1	06341 1	05706 0	30062 0	20640 1	50733 0	02127 1	03044 1
14,6360	C: 01210 0	50102 1	20077 0	10000 0	64516 1	06371 1	64516 1	64516 1
14,6370	40000 0	60102 1	10000 0	64516 1	06376 0	40000 0	50034 0	06403 0

OCTAL LISTING OF PARAGRAPH # 061, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

14,6400	20000 0	34477 1	60034 0	20077 0	50000 1	05702 1	20017 0	50637 0
14,6410	10735 1	06413 1	06416 1	03007 0	C: 00105 0	02124 1	10216 0	06432 1
14,6420	10272 1	06432 1	10346 1	06432 1	10422 1	06432 1	10476 0	06432 1
14,6430	03044 1	C: 01207 0	65503 1	50735 0	20000 0	50052 0	35501 0	20735 1
14,6440	47777 0	34503 0	25777 1	40637 1	30003 1	60735 0	50735 0	32165 1
14,6450	02052 1	C: 30677 1	06020 0	35501 0	30735 0	10000 0	20000 0	50000 1
14,6460	05702 1	50030 1	40053 0	50577 1	40052 1	50575 0	40050 0	50574 1
14,6470	40051 1	50576 0	40047 0	50600 1	02677 0	34512 0	70645 1	10000 0
14,6500	02264 0	44512 1	70645 1	64512 0	50645 0	10004 1	64516 1	06674 1
14,6510	06511 1	30007 0	30007 0	74503 1	10000 0	06611 1	10735 1	06543 0
14,6520	30575 0	50637 0	30577 1	50640 0	30573 0	50641 1	32143 0	02052 1
14,6530	C: 30651 0	30637 0	20601 1	50115 1	30640 0	20601 1	50116 1	30641 1
14,6540	20601 1	50117 0	02264 0	66676 0	10000 0	06552 0	C: 76777 1	03007 0
14,6550	C: 00106 0	02264 0	64516 1	76546 1	64505 0	50735 0	74607 0	50640 0
14,6560	20000 0	30052 0	64475 0	50637 0	64516 1	20640 1	50052 0	34475 0
14,6570	50640 0	20000 0	40572 0	20637 1	50000 1	10637 1	50637 0	10640 1
14,6600	06570 0	32261 0	70735 1	10000 0	02264 0	32165 1	02052 1	C: 30750 0
14,6610	02264 0	10735 1	06616 0	03007 0	C: 00107 1	02256 1	44505 1	70735 1
14,6620	30735 0	74505 1	10000 0	06627 1	03007 0	C: 00110 1	02256 1	34607 1
14,6630	70735 1	50577 1	45362 1	20577 0	60052 0	20577 0	50052 0	34503 0
14,6640	60735 0	30735 0	72261 1	10000 0	02256 1	32165 1	02052 1	C: 30755 0
14,6650	02256 1	03302 0	03310 0	40115 0	50616 0	40116 0	50617 1	40117 1
14,6660	50621 1	35501 0	50620 0	36672 1	03100 0	06670 0	03362 0	02124 1
14,6670	36673 0	03320 0	C: 00656 1	C: 30653 1	05720 1	C: 10001 1	C: 74000 1	36753 0
14,6700	03100 0	03315 0	05654 0	C: 14000 1	03136 0	06736 0	06736 0	36747 0
14,6710	70602 1	66714 0	10000 0	06736 0	C: 77727 0	06736 0	34607 1	70735 1
14,6720	50735 0	40000 0	20735 1	60052 0	25777 1	44503 1	64516 1	20735 1
14,6730	50052 0	20017 0	34516 1	02173 0	C: 30744 0	02124 1	32261 0	70735 1
14,6740	10000 0	34510 1	66746 1	06700 0	06261 1	06314 1	C: 05000 1	C: 00076 0
14,6750	36746 1	50110 1	03105 0	C: 05100 0	02124 1	36753 0	06751 1	20017 0
14,6760	30001 0	50117 0	44504 0	70646 1	64504 1	30646 0	74504 0	10000 0
14,6770	06772 0	00117 0	30072 1	50115 1	30071 1	50116 1	36103 0	02173 0

OCTAL LISTING OF PARAGRAPH # 062, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

14,7000	C: 31003 0	37010 1	02127 1	37010 1	02060 0	03416 1	C: 02000 0	02256 1
14,7010	C: 31011 0	20017 0	30115 1	50072 1	30116 1	50071 1	00117 0	35502 0
14,7020	50101 1	20000 0	41001 0	50115 1	20101 0	40736 1	25777 1	40755 1
14,7030	50116 1	40115 0	50115 1	25777 1	44513 0	10000 0	07216 0	07041 0
14,7040	07216 0	20101 0	40737 0	40000 0	25777 1	40003 0	60116 1	20101 0
14,7050	51002 1	35501 0	60115 1	20101 0	51001 1	10101 0	64335 0	07020 1
14,7060	C: 00756 0	50101 1	50077 1	41001 0	50115 1	41002 0	50116 1	40747 1
14,7070	07145 0	41003 1	50115 1	41004 0	50116 1	40752 0	07146 0	40744 1
14,7100	07171 1	41003 1	50115 1	41004 0	50116 1	40750 1	07145 0	41005 1
14,7110	50115 1	41006 1	50116 1	40753 1	07146 0	40745 0	07171 1	41003 1
14,7120	50115 1	41004 0	50116 1	40754 0	07145 0	41005 1	50115 1	41006 1
14,7130	50116 1	40751 0	07145 0	40746 0	07171 1	10101 0	07140 0	05702 1
14,7140	20017 0	32170 0	02052 1	C: 31237 0	06020 0	40000 0	30116 1	25777 1
14,7150	40116 0	30116 1	25777 1	40115 0	50034 0	30003 1	60116 1	20077 0
14,7160	60757 1	20077 0	30757 1	30034 0	20077 0	60756 0	20077 0	50756 0
14,7170	00001 0	30001 0	50100 0	30001 0	25777 1	40755 1	25777 1	45502 1
14,7200	50034 0	30003 1	07157 0	35503 1	60077 1	30077 1	20000 0	10756 1
14,7210	07212 1	00100 0	77260 0	10000 0	50101 1	00100 0	20101 0	40737 0
14,7220	40000 0	25777 1	44513 0	25777 1	40115 0	50034 0	30003 1	60116 1
14,7230	20101 0	31002 1	30034 0	60115 1	20101 0	31001 1	07055 0	34504 1
14,7240	70646 1	10000 0	02124 1	03416 1	C: 02000 0	37060 0	05654 0	C: 31347 0
14,7250	05654 0	C: 30331 0	03066 1	35501 0	50756 0	50760 0	50762 1	02124 1
14,7260	C: 77740 1	40036 0	40000 0	30755 0	40000 0	60755 0	10000 0	64516 1
14,7270	07275 0	07273 0	02124 1	40000 0	64476 0	25777 1	44506 1	50115 1
14,7300	50106 0	30003 1	50116 1	50107 1	35501 0	50101 1	50077 1	40744 1
14,7310	07331 1	40106 1	50115 1	40107 0	50116 1	40745 0	07330 0	40106 1
14,7320	50115 1	40107 0	50116 1	40746 0	07330 0	10101 0	07237 0	02124 1
14,7330	40000 0	30001 0	50100 0	35501 0	50117 0	30001 0	05416 1	30115 1
14,7340	50034 0	30116 1	07202 0	30755 0	40000 0	60115 1	07266 1	50115 1
14,7350	10764 0	07524 0	35503 1	50116 1	60000 1	60115 1	50077 1	20000 0
14,7360	10000 0	35503 1	07364 1	45503 0	20077 0	60000 1	20077 0	30000 1
14,7370	10116 0	07353 0	20017 0	34516 1	02173 0	C: 21504 0	44473 1	50677 1

OCTAL LISTING OF PARAGRAPH # 063, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

14,7400	45502 1	60115 1	50764 1	60120 0	50115 1	10764 0	07524 0	35503 1
14,7410	50116 1	60000 1	60115 1	50077 1	20000 0	10000 0	07421 1	07421 1
14,7420	07423 0	35503 1	07424 1	45503 0	20077 0	60000 1	20077 0	30000 1
14,7430	10116 0	07410 0	07372 0	50113 1	05706 0	30062 0	50064 0	35501 0
14,7440	50117 0	35503 1	50077 1	60000 1	60113 1	50100 0	20000 0	30000 1
14,7450	50115 1	20100 1	30001 0	50116 1	05654 0	C: 07154 0	10000 0	35503 1
14,7460	65503 1	64340 1	60116 1	60115 1	20100 1	50001 0	07476 0	50001 0
14,7470	20100 1	60001 0	20100 1	50001 0	30001 0	07477 1	35501 0	60115 1
14,7500	20100 1	30000 1	10077 0	07442 1	30113 1	50115 1	10764 0	07543 1
14,7510	32261 0	70064 1	50072 1	34606 0	70064 1	64373 1	50071 1	20017 0
14,7520	34516 1	02173 0	C: 21571 1	07376 1	30001 0	50117 0	05706 0	30062 0
14,7530	50116 1	37547 0	02127 1	10764 0	07531 1	30116 1	50072 1	74606 1
14,7540	64373 1	50071 1	00117 0	30001 0	50117 0	30064 0	07530 0	C: 31533 0
14,7550	32154 0	02046 1	C: 31562 1	37572 0	02173 0	C: 65121 0	34513 1	02312 0
14,7560	C: 00003 1	02256 1	02362 1	C: 00043 0	04000 0	I: 75175 0	I: 76575 1	C: 13534 1
14,7570	C: 20416 0	02124 1	C: 00175 1	07573 1	07574 0	CKSM 71075 0	@	@
14,7600	@	@	@	@	@	@	@	@
14,7610	@	@	@	@	@	@	@	@
14,7620	@	@	@	@	@	@	@	@
14,7630	@	@	@	@	@	@	@	@
14,7640	@	@	@	@	@	@	@	@
14,7650	@	@	@	@	@	@	@	@
14,7660	@	@	@	@	@	@	@	@
14,7670	@	@	@	@	@	@	@	@
14,7700	@	@	@	@	@	@	@	@
14,7710	@	@	@	@	@	@	@	@
14,7720	@	@	@	@	@	@	@	@
14,7730	@	@	@	@	@	@	@	@
14,7740	@	@	@	@	@	@	@	@
14,7750	@	@	@	@	@	@	@	@
14,7760	@	@	@	@	@	@	@	@
14,7770	@	@	@	@	@	@	@	@

OCTAL LISTING OF PARAGRAPH # 104, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

21,6000	04000 0	I: 45175 0	I: 76575 1	C: 01317 0	C: 20325 1	03302 0	03310 0	30115 1
21,6010	50616 0	35501 0	50617 1	07542 0	C: 00661 0	06745 1	04000 0	I: 63776 1
21,6020	C: 01315 1	C: 00003 1	C: 32620 1	I: 45175 0	I: 76575 1	C: 01353 0	C: 20325 1	30115 1
21,6030	50616 0	07542 0	C: 00661 0	06745 1	03362 0	04000 0	I: 45175 0	I: 76565 0
21,6040	C: 15617 0	C: 20271 1	C: 00023 0	C: 32001 1	I: 55176 1	C: 01353 0	C: 32011 0	I: 47576 0
21,6050	C: 32021 0	I: 57176 0	C: 01353 0	C: 32017 0	I: 47575 0	I: 47065 1	C: 00007 0	C: 32013 1
21,6060	I: 74175 1	I: 51622 0	C: 33461 1	C: 00001 0	C: 00002 0	C: 37241 1	I: 51576 1	C: 02061 1
21,6070	I: 76776 0	C: 03446 1	I: 76776 0	C: 04644 0	I: 47575 0	I: 77176 1	C: 33323 0	I: 77576 0
21,6100	05654 0	C: 30000 1	02362 1	C: 00001 0	33543 0	31446 0	35501 0	21446 1
21,6110	51356 0	11446 1	06105 0	33533 1	31446 0	35501 0	21446 1	51446 0
21,6120	11446 1	06114 0	33571 1	51320 1	05654 0	C: 30331 0	06746 1	41322 1
21,6130	40000 0	50700 0	41323 0	40000 0	50701 1	41324 1	40000 0	50702 1
21,6140	02276 0	C: 02103 1	05654 0	C: 30104 1	05654 0	C: 30331 0	06746 1	02276 0
21,6150	C: 02203 1	05654 0	C: 30143 1	02676 1	40572 0	51370 1	40573 1	51371 0
21,6160	20016 1	05654 0	C: 30331 0	06746 1	02362 1	C: 00005 1	35501 0	51332 1
21,6170	51333 0	51334 1	51335 0	51336 0	51337 1	50045 0	50046 0	50044 1
21,6200	33532 0	51321 0	37011 0	50755 0	20017 0	37002 1	02173 0	C: 42211 0
21,6210	02124 1	36264 1	05750 0	33544 1	02312 0	C: 00003 1	40036 0	50665 1
21,6220	35503 1	51035 0	30006 1	30006 1	77017 1	10000 0	06242 0	34515 1
21,6230	70646 1	10000 0	06242 0	37002 1	02173 0	C: 42211 0	34501 1	02046 1
21,6240	C: 42270 1	02256 1	40573 1	51467 0	40572 0	51466 1	41467 1	50667 0
21,6250	34516 1	02312 0	C: 00005 1	10000 0	06236 0	06256 0	37014 0	02173 0
21,6260	C: 65152 1	06236 0	36265 0	06212 0	C: 61313 1	C: 61364 1	07223 0	06301 0
21,6270	07174 1	10654 1	33543 0	06275 1	33545 0	02312 0	C: 00003 1	05654 0
21,6300	C: 31017 0	04000 0	I: 43176 0	C: 03005 1	C: 33455 0	I: 47576 0	C: 33457 1	I: 76575 1
21,6310	I: 57176 0	C: 20271 1	C: 01315 1	C: 32043 1	I: 55176 1	C: 01315 1	C: 32045 1	I: 43175 0
21,6320	I: 66776 1	C: 03001 0	C: 01317 0	I: 57176 0	C: 00001 0	C: 32003 0	I: 55176 1	C: 32005 0
21,6330	I: 77576 0	10654 1	07032 1	06334 0	02346 1	C: 00005 1	06340 0	06451 1
21,6340	02346 1	C: 00006 1	06344 1	06457 1	02346 1	C: 00003 1	06352 0	04000 0
21,6350	I: 76776 0	C: 02360 0	02362 1	C: 00002 0	04000 0	I: 76776 0	C: 02575 1	I: 76776 0
21,6360	C: 02515 1	I: 45176 0	C: 01465 1	C: 33371 1	I: 77576 0	11321 1	06436 0	10764 0
21,6370	06437 1	35501 0	31452 0	61333 0	51341 0	35501 0	61332 1	51340 1

OCTAL LISTING OF PARAGRAPH # 105, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

21,6400	35501 0	31446 0	61335 0	51343 1	35501 0	61334 1	51342 0	35501 0
21,6410	31450 1	61337 1	51345 1	35501 0	61336 0	51344 0	35501 0	51332 1
21,6420	51333 0	51334 1	51335 0	51336 0	51337 1	33532 0	51321 0	02276 0
21,6430	C: 02603 0	20017 0	32162 0	02052 1	C: 42442 0	02124 1	51321 0	02276 0
21,6440	C: 02603 0	02124 1	37030 0	05654 0	C: 31433 1	05654 0	C: 30331 0	02124 1
21,6450	02124 1	11320 0	06456 0	02362 1	C: 00002 0	06457 1	51320 1	04000 0
21,6460	I: 76776 0	C: 02515 1	I: 66775 1	I: 64742 1	C: 01004 1	C: 01363 0	C: 02765 1	C: 01363 0
21,6470	C: 33363 1	I: 53575 0	I: 52572 0	C: 00003 1	C: 00001 0	C: 02661 1	I: 66775 1	I: 64742 1
21,6500	C: 01006 0	C: 01361 1	C: 02765 1	C: 01361 1	C: 33361 0	I: 53574 1	I: 47433 0	I: 76776 0
21,6510	C: 00001 0	C: 02661 1	I: 76776 0	C: 02362 1	I: 66775 1	I: 63666 1	C: 01465 1	C: 01371 0
21,6520	C: 00014 1	C: 03010 0	I: 64775 0	I: 63742 0	C: 00001 0	C: 00043 0	C: 00002 0	C: 01453 1
21,6530	C: 33453 0	I: 64775 0	I: 63726 1	C: 77777 0	C: 00045 0	C: 00002 0	C: 01455 1	C: 33455 0
21,6540	I: 64775 0	I: 63776 1	C: 01455 1	C: 00005 1	C: 00002 0	I: 64774 1	I: 63742 0	I: 70776 0
21,6550	C: 01457 0	C: 00003 1	C: 00002 0	C: 01447 1	C: 33447 0	I: 64775 0	I: 63776 1	C: 00003 1
21,6560	C: 01455 1	C: 00002 0	I: 64774 1	I: 63732 1	I: 70776 0	C: 00005 1	C: 01457 0	C: 00002 0
21,6570	C: 77777 0	C: 01451 0	C: 33451 1	I: 40576 1	I: 45575 1	I: 64716 0	C: 00052 0	C: 01006 0
21,6600	C: 00005 1	C: 00002 0	I: 64775 0	I: 63742 0	C: 01004 1	C: 00003 1	C: 00002 0	C: 33361 0
21,6610	I: 53574 1	I: 52435 1	I: 47172 0	C: 00007 0	C: 00003 1	C: 02661 1	I: 64775 0	I: 63776 1
21,6620	C: 01006 0	C: 00003 1	C: 00002 0	I: 64775 0	I: 63732 1	C: 01004 1	C: 00005 1	C: 00002 0
21,6630	C: 33363 1	I: 64776 0	C: 01363 0	C: 02767 0	I: 64775 0	I: 70776 0	C: 01357 1	C: 02771 1
21,6640	C: 33357 0	I: 47574 1	I: 64716 0	I: 70776 0	C: 02773 0	C: 00010 0	C: 01453 1	C: 33453 0
21,6650	I: 64775 0	I: 63776 1	C: 01363 0	C: 02775 0	C: 00004 0	C: 33457 1	I: 44576 0	C: 00052 0
21,6660	I: 47576 0	C: 32001 1	I: 47575 0	I: 70376 1	C: 02751 0	C: 36751 1	I: 45175 0	I: 64316 1
21,6670	C: 00001 0	C: 05732 1	C: 00006 1	I: 64375 1	I: 70342 0	C: 02751 0	C: 05742 0	C: 03115 1
21,6700	C: 37115 0	I: 40576 1	34501 1	02046 1	C: 42147 0	05702 1	44513 0	60115 1
21,6710	10000 0	00001 0	C: 24000 1	06714 0	20115 0	06715 1	06000 1	06100 0
21,6720	07252 0	10727 1	06726 1	06746 1	06733 0	06746 1	66731 1	10000 0
21,6730	06000 1	C: 77730 0	06000 1	20115 0	06732 1	06741 0	02362 1	C: 00002 0
21,6740	06344 1	02362 1	C: 00006 1	06457 1	C: 00050 1	03362 0	05654 0	C: 30241 0
21,6750	44516 0	02312 0	C: 00003 1	02124 1	C: 24000 1	C: 00000 1	C: 02000 0	C: 00000 1
21,6760	C: 14631 0	C: 23146 0	C: 00101 1	C: 21116 1	C: 03146 1	C: 14632 0	C: 03146 1	C: 14632 0
21,6770	C: 34631 1	C: 23146 0	C: 56777 0	C: 77777 0	C: 20000 0	C: 00000 1	C: 03610 0	C: 01227 1

OCTAL LISTING OF PARAGRAPH # 106, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

21,7000	C: 10000 0	C: 00000 1	C: 00062 0	C: 42270 1	C: 00000 1	C: 03711 0	C: 33265 0	C: 37116 0
21,7010	C: 32652 1	C: 06200 0	C: 77746 1	C: 77715 1	C: 00310 0	C: 00000 1	C: 00372 1	C: 00060 1
21,7020	C: 37116 0	C: 32666 0	C: 13644 0	C: 33772 0	C: 00000 1	C: 00000 1	C: 12620 0	C: 03315 0
21,7030	C: 01340 1	C: 00011 1	04000 0	I: 70776 0	C: 01371 0	C: 03016 0	C: 33371 1	I: 76776 0
21,7040	C: 02515 1	I: 77576 0	35501 0	51340 1	51342 0	51344 0	31452 0	51341 0
21,7050	31446 0	51343 1	31450 1	51345 1	20017 0	32164 0	02052 1	C: 42442 0
21,7060	20016 1	02362 1	C: 00004 0	04000 0	I: 70776 0	C: 01074 0	C: 01467 0	C: 33145 1
21,7070	I: 76776 0	C: 13463 1	I: 57176 0	C: 01315 1	I: 45176 0	C: 05174 0	I: 55175 1	I: 41176 1
21,7100	C: 01315 1	C: 32041 0	I: 43576 1	C: 00006 1	C: 03167 1	I: 75575 1	I: 74572 1	C: 00003 1
21,7110	C: 00005 1	C: 04566 0	I: 47576 0	C: 33052 0	I: 45176 0	C: 05174 0	I: 45176 0	C: 00041 1
21,7120	I: 47175 1	I: 41153 0	C: 00043 0	I: 47575 0	I: 41753 0	C: 01052 1	I: 66776 1	C: 01317 0
21,7130	C: 03001 0	C: 32037 1	I: 47575 0	I: 57166 1	C: 33066 1	I: 55174 0	I: 75642 0	I: 73176 0
21,7140	C: 00037 0	C: 77777 0	C: 01066 0	C: 33066 1	I: 47575 0	I: 41753 0	C: 01052 1	C: 33060 1
21,7150	I: 41775 1	I: 75776 0	C: 01044 0	C: 00766 0	C: 03173 1	C: 32774 1	I: 75175 0	I: 76776 0
21,7160	C: 00766 0	C: 21643 0	I: 77576 0	32164 0	50755 0	06750 0	I: 42575 0	I: 76776 0
21,7170	C: 00006 1	C: 03106 0	C: 14167 1	C: 34104 0	30001 0	50116 1	33535 1	50115 1
21,7200	20115 0	41356 1	20115 0	51243 0	10115 0	07177 1	33533 1	50115 1
21,7210	20115 0	41446 1	20115 0	51261 0	10115 0	07207 0	41321 1	51275 0
21,7220	41320 0	51276 0	00116 1	30001 0	50116 1	33535 1	50115 1	20115 0
21,7230	41243 1	20115 0	51356 0	10115 0	07226 0	33533 1	50115 1	20115 0
21,7240	41261 1	20115 0	51446 0	10115 0	07236 1	41275 1	51321 0	41276 1
21,7250	51320 1	00116 1	20017 0	32150 1	02046 1	C: 43262 0	34514 0	50115 1
21,7260	06721 0	06354 0	03302 0	03310 0	02362 1	C: 00003 1	35501 0	51400 1
21,7270	64516 1	50620 0	37540 1	03100 0	03315 0	21400 0	31346 1	50616 0
21,7300	21400 0	31350 0	50617 1	07542 0	C: 00661 0	07441 1	30616 0	21400 0
21,7310	51346 1	30617 1	21400 0	51350 0	11400 0	07320 1	34516 1	07267 0
21,7320	50620 0	35503 1	50617 1	34516 1	50616 0	37540 1	03100 0	03315 0
21,7330	35503 1	05654 0	C: 30406 0	05654 0	C: 30327 1	07441 1	04000 0	I: 76776 0
21,7340	C: 03475 1	I: 76776 0	C: 03446 1	I: 52775 0	I: 44776 1	C: 01403 1	C: 01425 0	C: 00002 0
21,7350	C: 33403 0	I: 52775 0	I: 44776 1	C: 01411 1	C: 01425 0	C: 00002 0	C: 33411 0	I: 71574 1
21,7360	I: 74471 0	I: 66572 1	C: 00736 0	C: 00003 1	C: 00047 1	C: 00051 0	C: 04733 1	I: 76776 0
21,7370	C: 04524 0	I: 75176 0	C: 00041 1	C: 33375 0	I: 71574 1	I: 63561 0	I: 56531 0	C: 00736 0

OCTAL LISTING OF PARAGRAPH # 110, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

22,6000	34475 0	51100 1	51101 0	34516 1	51102 0	51103 1	34516 1	02173 0
22,6010	C: 44024 1	34516 1	61104 0	02173 0	C: 44017 1	20016 1	02124 1	30003 1
22,6020	30032 0	34516 1	51111 1	06030 1	30003 1	30032 0	35501 0	51111 1
22,6030	45501 1	21111 0	30045 0	21111 0	61102 0	21111 0	30045 0	10000 0
22,6040	64516 1	06045 0	06044 1	06051 0	44516 0	21111 0	60045 0	21111 0
22,6050	30045 0	11105 0	06055 1	06065 1	06055 1	44475 1	21111 0	61100 1
22,6060	10000 0	06065 1	06124 0	06065 1	06124 0	21111 0	11100 0	06100 0
22,6070	06073 0	06073 0	30000 1	21111 0	41102 1	21111 0	51102 0	33535 1
22,6100	21111 0	51100 1	21111 0	21100 0	36130 0	25777 1	41110 1	64477 1
22,6110	25777 1	46146 0	50575 0	11111 0	06121 0	30575 0	02173 0	C: 44024 1
22,6120	06124 0	30575 0	02173 0	C: 44017 1	30032 0	25777 1	44516 0	02256 1
22,6130	C: 01602 1	C: 01064 1	C: 00720 1	C: 00636 1	C: 00602 0	C: 00562 0	C: 00553 1	C: 00553 1
22,6140	C: 00562 0	C: 00602 0	C: 00636 1	C: 00720 1	C: 01064 1	C: 04173 0	C: 03146 1	04000 0
22,6150	I: 45176 0	C: 05174 0	C: 33523 0	I: 47576 0	C: 33525 0	I: 47576 0	C: 33521 1	I: 76776 0
22,6160	C: 04262 0	I: 47176 1	C: 05200 0	C: 33523 0	I: 47576 0	C: 33525 0	I: 47576 0	C: 33521 1
22,6170	I: 76776 0	C: 04262 0	I: 45175 0	I: 70776 0	C: 01317 0	C: 04256 1	C: 33523 0	I: 47576 0
22,6200	C: 33317 1	I: 66775 1	I: 43772 1	C: 01523 1	C: 05200 0	C: 04260 1	C: 04262 0	I: 45175 0
22,6210	I: 70776 0	C: 01321 0	C: 04256 1	C: 33525 0	I: 47576 0	C: 33321 1	I: 66775 1	I: 43772 1
22,6220	C: 01525 1	C: 05200 0	C: 04251 0	C: 04262 0	I: 45175 0	I: 70776 0	C: 01323 1	C: 04256 1
22,6230	C: 33521 1	I: 47576 0	C: 33323 0	I: 66775 1	I: 43772 1	C: 01521 0	C: 05200 0	C: 04244 1
22,6240	C: 04262 0	I: 76776 0	C: 04225 0	I: 47176 1	C: 05200 0	C: 33323 0	I: 76776 0	C: 04210 0
22,6250	I: 47176 1	C: 05200 0	C: 33321 1	I: 76776 0	C: 04173 0	C: 06314 1	C: 31463 1	I: 77576 0
22,6260	02124 1	I: 45575 1	I: 75172 1	C: 01315 1	C: 15573 1	C: 04313 1	I: 47576 0	C: 33403 0
22,6270	I: 75175 0	I: 76776 0	C: 15601 1	C: 04313 1	I: 47576 0	C: 33411 0	I: 75176 0	C: 15573 1
22,6300	C: 32007 1	I: 75176 0	C: 15601 1	C: 32015 1	I: 76776 0	C: 04761 0	I: 76776 0	C: 04353 0
22,6310	I: 44576 0	C: 01315 1	I: 45575 1	I: 43411 1	C: 00052 0	C: 00006 1	C: 04321 0	C: 00006 1
22,6320	I: 75575 1	I: 74423 1	C: 00005 1	C: 00001 0	C: 01523 1	C: 32037 1	I: 76776 0	C: 04566 0
22,6330	I: 75575 1	I: 74423 1	C: 00003 1	C: 00005 1	C: 01525 1	C: 32037 1	I: 76776 0	C: 04566 0
22,6340	I: 75575 1	I: 74423 1	C: 00001 0	C: 00003 1	C: 01521 0	C: 32037 1	I: 76776 0	C: 04566 0
22,6350	I: 44576 0	C: 00052 0	I: 45575 1	I: 45176 0	C: 00052 0	C: 01477 1	I: 45176 0	C: 05174 0
22,6360	I: 47175 1	I: 41153 0	C: 01503 0	C: 32027 0	I: 56776 1	C: 00027 1	C: 00002 0	C: 32023 1
22,6370	I: 56776 1	C: 00033 1	C: 00002 0	C: 32021 0	I: 76776 0	C: 04437 0	I: 47576 0	C: 33523 0

OCTAL LISTING OF PARAGRAPH # 111, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

22,6400	I: 56776 1	C: 01501 1	C: 00002 0	C: 32023 1	I: 64776 0	C: 00027 1	C: 01503 0	I: 64775 0
22,6410	I: 66776 1	C: 00033 1	C: 01477 1	C: 32021 0	I: 76776 0	C: 04437 0	I: 47576 0	C: 33525 0
22,6420	I: 42776 1	C: 00027 1	C: 01513 1	C: 32021 0	I: 42776 1	C: 00027 1	C: 01505 0	C: 32023 1
22,6430	I: 76776 0	C: 04437 0	I: 47576 0	C: 33521 1	I: 44576 0	C: 00052 0	I: 65175 1	I: 66756 0
22,6440	C: 00023 0	C: 05170 1	C: 04453 1	I: 63775 1	I: 61056 0	C: 00021 1	C: 00002 0	C: 00023 0
22,6450	C: 32025 1	I: 40576 1	I: 63775 1	I: 63176 1	C: 00023 0	C: 00002 0	C: 32025 1	I: 73776 0
22,6460	C: 00021 1	C: 04466 1	I: 45175 0	I: 40576 1	C: 00025 0	I: 53775 1	I: 66776 1	C: 05200 0
22,6470	C: 00023 0	C: 00025 0	C: 32025 1	I: 40576 1	I: 45575 1	I: 43411 1	C: 00052 0	C: 00006 1
22,6500	C: 04503 0	C: 00006 1	I: 75575 1	I: 74572 1	C: 00005 1	C: 00001 0	C: 04556 0	I: 75575 1
22,6510	I: 74572 1	C: 00003 1	C: 00005 1	C: 04556 0	I: 75575 1	I: 74572 1	C: 00001 0	C: 00003 1
22,6520	C: 04556 0	I: 44576 0	C: 00052 0	I: 45575 1	I: 43576 1	C: 00052 0	C: 00006 1	C: 04552 1
22,6530	I: 75575 1	I: 74572 1	C: 00001 0	C: 00003 1	C: 04556 0	I: 75575 1	I: 74572 1	C: 00003 1
22,6540	C: 00005 1	C: 04556 0	I: 75575 1	I: 74572 1	C: 00005 1	C: 00001 0	C: 04556 0	I: 44576 0
22,6550	C: 00052 0	I: 42575 0	I: 76776 0	C: 00006 1	C: 04531 1	I: 57574 0	I: 42171 0	I: 61576 1
22,6560	C: 00051 0	C: 00011 1	C: 20304 1	C: 00051 0	C: 32037 1	I: 55176 1	C: 00037 0	C: 34021 0
22,6570	I: 57176 0	C: 00037 0	C: 34025 1	I: 64375 1	I: 63776 1	C: 00025 0	C: 00112 0	C: 00002 0
22,6600	I: 64375 1	I: 63776 1	C: 00021 1	C: 00112 0	C: 00002 0	I: 64374 0	I: 63615 0	I: 65776 1
22,6610	C: 00025 0	C: 00111 0	C: 00002 0	C: 00006 1	C: 04630 0	C: 34112 1	I: 64375 1	I: 63742 0
22,6620	C: 00021 1	C: 00111 0	C: 00002 0	C: 34111 1	I: 75175 0	I: 40576 1	C: 00041 1	I: 47575 0
22,6630	I: 70776 0	C: 34112 1	I: 64375 1	I: 63732 1	C: 00021 1	C: 00111 0	C: 00002 0	C: 34111 1
22,6640	I: 75175 0	I: 40576 1	C: 00041 1	I: 41775 1	I: 73176 0	C: 01477 1	C: 01433 1	I: 47575 0
22,6650	I: 42625 0	C: 01513 1	C: 00052 0	C: 32021 0	I: 47575 0	I: 42776 1	C: 01505 0	C: 32023 1
22,6660	I: 76776 0	C: 04437 0	I: 47576 0	C: 33521 1	I: 42774 0	I: 63746 1	I: 56713 1	C: 01433 1
22,6670	C: 01477 1	C: 00003 1	C: 04725 0	C: 00002 0	C: 33525 0	I: 65175 1	I: 66616 0	C: 01525 1
22,6700	C: 05202 1	C: 04725 0	I: 42776 1	C: 01441 1	C: 00001 0	C: 32021 0	I: 42776 1	C: 01425 0
22,6710	C: 32023 1	I: 76776 0	C: 04437 0	I: 47576 0	C: 33523 0	I: 75175 0	I: 76576 1	C: 01521 0
22,6720	C: 20624 0	C: 32701 0	I: 44576 0	C: 00052 0	I: 77576 0	03007 0	C: 00401 1	04000 0
22,6730	I: 76776 0	C: 04703 1	I: 42175 1	I: 76571 0	C: 00013 0	C: 20304 1	C: 20407 0	I: 47575 0
22,6740	I: 57116 0	C: 00002 0	I: 42175 1	I: 76576 1	C: 00007 0	C: 20304 1	I: 47575 0	I: 55122 0
22,6750	C: 00003 1	C: 32041 0	I: 57175 0	I: 64776 0	C: 32043 1	I: 55176 1	C: 32045 1	I: 40576 1
22,6760	I: 75575 1	I: 55576 0	C: 01411 1	C: 01375 1	I: 41375 0	I: 73176 0	C: 03035 1	C: 03051 0
22,6770	C: 37051 1	I: 41375 0	I: 44776 1	C: 03035 1	C: 03051 0	C: 00002 0	C: 37065 0	I: 51576 1

OCTAL LISTING OF PARAGRAPH # 112, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

22,7000	C: 04765 1	I: 53573 0	I: 67565 0	I: 55561 0	I: 54576 1	C: 00007 0	C: 00037 0	C: 00023 0
22,7010	C: 00007 0	C: 00007 0	C: 00003 1	I: 65576 0	C: 00037 0	I: 75376 1	C: 00001 0	C: 03022 1
22,7020	I: 75376 1	C: 00015 0	C: 03036 1	C: 32031 1	I: 75374 0	I: 50642 1	I: 44725 1	C: 00031 0
22,7030	C: 03052 0	C: 77777 0	C: 00031 0	C: 00002 0	C: 00037 0	C: 37241 1	I: 51576 1	C: 05041 1
22,7040	I: 50576 0	C: 05014 1	I: 40576 1	I: 75175 0	I: 45572 0	C: 01417 1	C: 00052 0	C: 04475 0
22,7050	I: 47576 0	C: 32007 1	I: 45176 0	C: 05174 0	C: 32045 1	I: 47575 0	I: 73072 0	C: 00003 1
22,7060	C: 32001 1	I: 45176 0	C: 00001 0	C: 00021 1	I: 45176 0	C: 00003 1	C: 00023 0	I: 76776 0
22,7070	C: 04437 0	I: 76576 1	C: 20325 1	C: 33521 1	I: 42773 1	I: 63713 1	I: 63746 1	I: 73771 1
22,7100	C: 00001 0	C: 00007 0	C: 00004 0	C: 00004 0	C: 05113 1	C: 05113 1	C: 20325 1	C: 33523 0
22,7110	I: 44576 0	C: 00052 0	I: 77576 0	03007 0	C: 00402 1	02124 1	I: 41775 1	I: 73026 1
22,7120	C: 01513 1	C: 01417 1	C: 00002 0	C: 32027 0	I: 42775 1	I: 47025 0	C: 00027 1	C: 01477 1
22,7130	C: 00052 0	C: 32023 1	I: 42776 1	C: 00027 1	C: 01505 0	C: 32021 0	I: 76776 0	C: 04437 0
22,7140	I: 76576 1	C: 20325 1	C: 33521 1	I: 41772 0	I: 42716 1	I: 63116 1	I: 71756 0	I: 76576 1
22,7150	C: 00027 1	C: 01513 1	C: 01417 1	C: 00003 1	C: 00004 0	C: 05164 1	C: 05164 1	C: 20325 1
22,7160	C: 33523 0	I: 44576 0	C: 00052 0	I: 77576 0	03007 0	C: 00403 0	02124 1	C: 05520 0
22,7170	C: 26075 1	C: 05260 0	C: 04061 1	C: 00000 1	C: 00000 1	C: 37777 1	C: 37777 1	C: 20000 0
22,7200	C: 00000 1	C: 12525 0	C: 12525 0	07203 1	07204 0	CKSM 75452 0	@	@
22,7210	@	@	@	@	@	@	@	@
22,7220	@	@	@	@	@	@	@	@
22,7230	@	@	@	@	@	@	@	@
22,7240	@	@	@	@	@	@	@	@
22,7250	@	@	@	@	@	@	@	@
22,7260	@	@	@	@	@	@	@	@
22,7270	@	@	@	@	@	@	@	@
22,7300	@	@	@	@	@	@	@	@
22,7310	@	@	@	@	@	@	@	@
22,7320	@	@	@	@	@	@	@	@
22,7330	@	@	@	@	@	@	@	@
22,7340	@	@	@	@	@	@	@	@
22,7350	@	@	@	@	@	@	@	@
22,7360	@	@	@	@	@	@	@	@
22,7370	@	@	@	@	@	@	@	@

OCTAL LISTING OF PARAGRAPH # 114, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

23,6000	I: 56775 1	I: 46542 0	C: 01265 1	C: 00012 1	C: 01145 0	C: 33261 1	I: 64774 1	I: 56631 0
23,6010	I: 70776 0	C: 07431 0	C: 01263 1	C: 00015 0	C: 01147 1	C: 33147 0	I: 76776 0	C: 06027 1
23,6020	I: 76776 0	C: 06066 1	I: 76776 0	C: 06145 1	I: 76776 0	C: 06225 1	I: 73575 1	I: 67553 0
23,6030	C: 00070 0	C: 00124 0	C: 01101 0	I: 63776 1	C: 00037 0	C: 00002 0	I: 67173 0	I: 46522 0
23,6040	I: 63732 1	I: 63631 0	C: 01107 0	C: 00007 0	C: 00004 0	C: 07445 0	C: 00002 0	I: 47573 0
23,6050	I: 56633 1	I: 70672 0	I: 62776 0	C: 00002 0	C: 07445 0	C: 00004 0	C: 00007 0	I: 42775 1
23,6060	I: 63631 0	C: 01101 0	C: 01107 0	C: 00003 1	I: 40576 1	I: 73175 0	I: 74412 0	C: 01131 0
23,6070	C: 00013 0	C: 01137 0	I: 63776 1	C: 00037 0	C: 00002 0	C: 33255 0	I: 56775 1	I: 46512 0
23,6100	C: 01263 1	C: 00012 1	C: 01255 1	I: 56772 0	I: 62732 0	I: 55666 1	I: 55661 0	I: 63776 1
23,6110	C: 07445 0	C: 00004 0	C: 01255 1	C: 00013 0	C: 00021 1	C: 00021 1	C: 06306 1	C: 00002 0
23,6120	C: 00011 1	I: 55775 1	I: 63776 1	C: 00017 1	C: 00021 1	C: 00006 1	I: 47572 1	I: 65666 1
23,6130	I: 65732 1	I: 64716 0	I: 46542 0	C: 07445 0	C: 77777 0	C: 07445 0	C: 77777 0	C: 77777 0
23,6140	C: 00002 0	C: 01151 0	C: 33151 1	I: 40576 1	I: 47571 1	I: 51031 1	I: 64716 0	I: 46555 0
23,6150	I: 63535 1	I: 45572 0	C: 00013 0	C: 00005 1	C: 00070 0	C: 00021 1	C: 00124 0	C: 01273 0
23,6160	C: 06312 1	I: 47572 1	I: 64716 0	I: 64716 0	I: 64716 0	I: 46576 1	C: 01151 0	C: 00005 1
23,6170	C: 01151 0	C: 00002 0	C: 01151 0	C: 00002 0	C: 32030 0	I: 47575 0	I: 55776 1	C: 00011 1
23,6200	I: 64774 1	I: 63722 0	I: 63631 0	C: 01151 0	C: 00021 1	C: 00006 1	C: 01151 0	C: 00003 1
23,6210	C: 32026 1	I: 47574 1	I: 64672 0	I: 46542 0	C: 00015 0	C: 00003 1	I: 55775 1	I: 70776 0
23,6220	C: 00007 0	C: 01151 0	I: 44576 0	C: 01273 0	I: 47575 0	I: 65776 1	C: 01261 0	C: 32021 0
23,6230	I: 77576 0	04000 0	I: 47573 0	I: 65132 1	I: 73641 0	I: 76776 0	C: 06300 1	C: 06407 1
23,6240	C: 06243 1	C: 06407 1	I: 64772 1	I: 63631 0	I: 65722 0	I: 53514 1	I: 46576 1	C: 00013 0
23,6250	C: 00030 1	C: 00005 1	C: 01151 0	C: 00015 0	C: 00004 0	C: 00001 0	C: 32023 1	I: 64774 1
23,6260	I: 63631 0	I: 70742 1	C: 00026 0	C: 00011 1	C: 00002 0	C: 77777 0	C: 00007 0	I: 62775 0
23,6270	I: 70776 0	C: 00021 1	C: 00023 0	C: 01151 0	C: 33151 1	I: 76776 0	C: 06023 0	C: 00000 1
23,6300	C: 00002 0	C: 14000 1	C: 00000 1	C: 10000 0	C: 00000 1	C: 12525 0	C: 12525 0	C: 02000 0
23,6310	C: 00000 1	I: 47576 0	C: 32033 0	I: 47574 1	I: 76443 0	I: 46576 1	C: 06351 0	C: 32031 1
23,6320	I: 47573 0	I: 64716 0	I: 46526 1	I: 55776 1	C: 00033 1	C: 00002 0	C: 06304 0	C: 00031 0
23,6330	I: 56775 1	I: 46576 1	C: 00031 0	C: 00003 1	I: 45174 1	I: 76443 0	I: 46576 1	C: 00033 1
23,6340	C: 06370 0	I: 55774 0	I: 65666 1	I: 70601 1	C: 00033 1	C: 00031 0	C: 06310 0	C: 70707 0
23,6350	05554 0	C: 00012 1	C: 26501 1	C: 07463 1	C: 60724 0	C: 60210 1	C: 03010 0	C: 26256 1
23,6360	C: 77554 0	C: 74242 0	C: 00010 0	C: 05475 1	C: 77777 0	C: 66460 0	04024 0	05554 0
23,6370	C: 00012 1	C: 32101 0	C: 17270 1	C: 65431 1	C: 40174 1	C: 01710 0	C: 10660 0	C: 77676 0

OCTAL LISTING OF PARAGRAPH # 115, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

23,6400	C: 52270 0	C: 00004 0	C: 21652 0	C: 77777 0	C: 71323 0	04024 0	I: 73574 0	I: 63535 1
23,6410	I: 47166 0	C: 00070 0	C: 00032 0	C: 00124 0	C: 00026 0	C: 00001 0	I: 66774 0	I: 63766 0
23,6420	I: 50622 1	C: 00023 0	C: 00030 1	C: 00004 0	C: 01107 0	C: 77777 0	C: 00002 0	I: 47575 0
23,6430	I: 50642 1	C: 01101 0	C: 33131 1	I: 47575 0	I: 71116 1	C: 00002 0	C: 32021 0	I: 64772 1
23,6440	I: 63631 0	I: 66672 1	I: 62766 1	I: 44776 1	C: 00013 0	C: 00030 1	C: 00005 1	C: 01151 0
23,6450	C: 00003 1	C: 00021 1	C: 00001 0	C: 00004 0	I: 56773 1	I: 66712 0	I: 75642 0	I: 44776 1
23,6460	C: 00021 1	C: 00002 0	C: 00026 0	C: 00021 1	C: 01107 0	C: 77777 0	C: 00002 0	C: 33137 1
23,6470	I: 44576 0	C: 01272 1	I: 73573 1	I: 67426 0	I: 50751 1	I: 73535 0	C: 01312 0	C: 01307 1
23,6500	C: 01153 1	C: 00015 0	C: 01131 0	C: 01306 0	C: 01313 1	C: 01310 1	C: 33161 1	I: 67776 0
23,6510	C: 01304 1	C: 06516 0	I: 75176 0	C: 01161 0	C: 36422 0	I: 73176 0	C: 01153 1	C: 33153 0
23,6520	I: 45176 0	C: 00037 0	C: 33255 0	I: 72776 1	C: 00123 1	I: 45773 0	I: 67155 1	I: 67476 0
23,6530	I: 46576 1	C: 01161 0	C: 00002 0	C: 00070 0	C: 00124 0	C: 00051 0	I: 57775 0	I: 56776 1
23,6540	C: 01255 1	C: 00047 1	C: 00002 0	I: 73176 0	C: 01161 0	C: 33161 1	I: 45176 0	C: 00037 0
23,6550	C: 33257 1	I: 47574 1	I: 57706 1	I: 56631 0	C: 00050 1	C: 77777 0	C: 00002 0	I: 70573 1
23,6560	I: 60501 0	I: 56511 1	I: 47470 1	C: 00050 1	C: 01307 1	C: 00047 1	C: 01310 1	C: 00003 1
23,6570	C: 00002 0	I: 47575 0	I: 56631 0	C: 00003 1	I: 42774 0	I: 63631 0	I: 65776 1	C: 01153 1
23,6600	C: 01161 0	C: 00002 0	I: 47575 0	I: 55776 1	C: 00005 1	I: 47575 0	I: 70776 0	C: 06304 0
23,6610	I: 47575 0	I: 53066 1	C: 00013 0	I: 47575 0	I: 63742 0	C: 00002 0	C: 06304 0	I: 70773 0
23,6620	I: 55716 1	I: 70712 1	I: 55766 0	C: 00013 0	C: 07445 0	C: 00011 1	C: 00002 0	C: 06302 0
23,6630	C: 00017 1	C: 00007 0	C: 01161 0	I: 45775 0	I: 50776 1	C: 01153 1	C: 00004 0	I: 64771 1
23,6640	I: 57631 1	I: 61745 0	I: 61505 0	I: 61505 0	I: 47166 0	C: 00001 0	C: 00015 0	C: 00052 0
23,6650	C: 00003 1	C: 00050 1	C: 00052 0	C: 00051 0	C: 01310 1	C: 01310 1	C: 00021 1	I: 47575 0
23,6660	I: 44376 0	C: 00077 1	C: 33203 0	I: 75176 0	C: 01161 0	C: 33153 0	I: 45176 0	C: 01257 0
23,6670	C: 33255 0	I: 73575 1	I: 67516 1	C: 00070 0	C: 00124 0	C: 01255 1	C: 00002 0	C: 33255 0
23,6700	I: 55776 1	C: 01157 0	C: 07435 1	I: 51174 1	I: 63666 1	I: 66776 1	C: 01157 0	C: 00004 0
23,6710	C: 07433 1	C: 06302 0	I: 47574 1	I: 55666 1	I: 63776 1	C: 01157 0	C: 07211 1	C: 00002 0
23,6720	I: 55775 1	I: 65776 1	C: 00001 0	C: 07231 0	I: 47575 0	I: 55666 1	C: 01157 0	C: 07213 0
23,6730	I: 55770 1	I: 65722 0	I: 63672 1	I: 62742 1	I: 55672 1	I: 62742 1	I: 75776 0	C: 00003 1
23,6740	C: 07215 0	C: 77777 0	C: 07443 0	C: 00003 1	C: 00003 1	C: 01255 1	C: 00005 1	C: 07441 1
23,6750	C: 00003 1	C: 01255 1	C: 00003 1	C: 01153 1	C: 33153 0	I: 64774 1	I: 63672 1	I: 62742 1
23,6760	C: 07443 0	C: 77777 0	C: 00002 0	C: 00003 1	C: 01255 1	I: 56774 0	I: 55712 0	I: 70726 0
23,6770	C: 07441 1	C: 00006 1	C: 77777 0	C: 01255 1	C: 77777 0	C: 01157 0	C: 33157 1	I: 51172 1

OCTAL LISTING OF PARAGRAPH # 116, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

23,7000	I: 51076 1	I: 61766 1	I: 63420 1	I: 50776 1	C: 01255 1	C: 00047 1	C: 07437 0	C: 01153 1
23,7010	C: 00015 0	C: 00001 0	C: 01203 1	C: 33203 0	I: 56774 0	I: 66616 0	I: 76776 0	C: 07475 0
23,7020	C: 00003 1	C: 01255 1	C: 07025 1	C: 07104 0	I: 56774 0	I: 65716 1	I: 62716 0	C: 07447 1
23,7030	C: 00003 1	C: 01255 1	C: 00007 0	C: 07451 0	C: 00003 1	C: 32033 0	I: 47567 0	I: 64742 1
23,7040	I: 64742 1	I: 64742 1	I: 64742 1	I: 63643 0	I: 51116 0	I: 61776 0	C: 07453 1	C: 07455 1
23,7050	C: 00033 1	C: 07457 0	C: 00033 1	C: 07461 0	C: 00033 1	C: 07463 1	C: 00002 0	C: 00003 1
23,7060	C: 07465 1	I: 41774 0	I: 75420 0	I: 74776 1	C: 07467 0	C: 01131 0	C: 00030 1	C: 00055 1
23,7070	C: 01137 0	I: 47573 0	I: 71166 0	I: 75765 1	I: 44242 0	C: 77777 0	C: 77777 0	C: 00002 0
23,7100	C: 00001 0	C: 01203 1	C: 33203 0	I: 73575 1	I: 76376 1	C: 01306 0	C: 16405 1	I: 71174 0
23,7110	I: 66756 0	I: 76776 0	C: 01115 0	C: 06304 0	C: 07117 1	C: 07144 1	I: 75573 1	I: 67565 0
23,7120	I: 67415 0	I: 42576 0	C: 06001 0	C: 01271 1	C: 06473 1	C: 01272 1	C: 00002 0	C: 07132 0
23,7130	C: 00002 0	I: 75176 0	C: 01115 0	C: 33153 0	I: 45176 0	C: 07227 1	C: 33265 0	I: 47576 0
23,7140	C: 33306 1	I: 44576 0	C: 01272 1	I: 45775 0	I: 50776 1	C: 01115 0	C: 00015 0	C: 01131 0
23,7150	C: 33101 1	I: 47576 0	C: 33131 1	I: 75574 0	I: 75020 1	I: 50776 1	C: 00011 1	C: 01123 0
23,7160	C: 00001 0	C: 01137 0	C: 33107 1	I: 47576 0	C: 33137 1	I: 75575 1	I: 55423 1	C: 00015 0
23,7170	C: 00003 1	C: 07227 1	C: 33145 1	I: 47576 0	C: 33151 1	I: 47576 0	C: 36261 1	I: 51575 1
23,7200	I: 40576 1	C: 07176 0	I: 45776 0	C: 01203 1	C: 00004 0	C: 33167 1	I: 76776 0	C: 07354 1
23,7210	C: 22525 0	C: 12525 0	C: 22000 1	C: 00000 1	C: 01200 1	C: 00000 1	I: 45775 0	I: 50776 1
23,7220	C: 01203 1	C: 00002 0	C: 01167 0	C: 33175 1	I: 76776 0	C: 07346 1	C: 00000 1	C: 00000 1
23,7230	C: 25252 0	C: 25253 1	I: 75773 0	I: 75622 0	I: 50766 0	I: 50776 1	C: 01167 0	C: 01265 1
23,7240	C: 07231 0	C: 00002 0	C: 01123 0	C: 01265 1	C: 01115 0	C: 33115 1	I: 45772 1	I: 50766 0
23,7250	I: 75622 0	I: 50615 0	I: 75576 1	C: 01203 1	C: 00004 0	C: 01175 0	C: 01265 1	C: 07231 0
23,7260	C: 00002 0	C: 01123 0	C: 00002 0	C: 07314 0	C: 00001 0	C: 37564 1	I: 75176 0	C: 01115 0
23,7270	C: 37454 0	I: 50576 0	C: 07304 1	I: 75176 0	C: 01002 1	C: 33115 1	I: 75176 0	C: 01010 1
23,7300	C: 33123 1	I: 44576 0	C: 01305 0	I: 74176 1	C: 03454 1	C: 33115 1	I: 74176 1	C: 03564 0
23,7310	C: 33123 1	I: 76776 0	C: 07132 0	I: 47576 0	C: 33123 1	I: 56775 1	I: 46542 0	C: 01265 1
23,7320	C: 00012 1	C: 01145 0	C: 33145 1	I: 67776 0	C: 01304 1	C: 07302 1	I: 76776 0	C: 07331 1
23,7330	I: 74572 1	I: 54565 0	I: 67535 0	I: 42565 1	I: 76776 0	C: 00045 0	C: 00007 0	C: 07377 0
23,7340	C: 01271 1	C: 01272 1	C: 00002 0	C: 00001 0	C: 07304 1	I: 45775 0	I: 50776 1	C: 01203 1
23,7350	C: 00003 1	C: 01167 0	C: 33167 1	I: 70775 0	I: 63535 1	C: 01263 1	C: 01265 1	C: 77764 1
23,7360	C: 01306 0	C: 33265 0	I: 75774 1	I: 45642 0	I: 75642 0	C: 01203 1	C: 01265 1	C: 00002 0
23,7370	C: 01123 0	C: 01265 1	C: 01115 0	C: 33153 0	I: 44576 0	C: 01271 1	I: 45776 0	C: 01153 1

OCTAL LISTING OF PARAGRAPH # 117, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

23,7400	C: 00005 1	I: 72174 0	I: 40766 1	I: 74776 1	C: 02421 1	C: 01153 1	C: 07435 1	I: 64772 1
23,7410	I: 57631 1	I: 61766 1	I: 64511 0	I: 44351 0	C: 00035 1	C: 00037 0	C: 00051 0	C: 06304 0
23,7420	C: 77777 0	C: 00051 0	C: 00004 0	C: 00002 0	C: 00051 0	C: 33203 0	I: 76376 1	C: 16405 1
23,7430	C: 24214 0	C: 11244 0	C: 36000 1	C: 00000 1	C: 30000 1	C: 00000 1	C: 12577 1	C: 24106 0

23,7440	C: 77711 0	C: 71033 1	C: 23377 0	C: 06703 0	C: 20000 0	C: 00000 1	C: 14467 1	C: 00000 1
23,7450	C: 31000 0	C: 00000 1	C: 70345 1	C: 62314 0	C: 25201 0	C: 06602 0	C: 54046 1	C: 46744 1
23,7460	C: 20033 0	C: 11303 1	C: 01000 0	C: 00000 1	C: 00000 1	C: 23042 0	C: 00000 1	C: 00000 1
23,7470	C: 00000 1	C: 00000 1	C: 37002 1	C: 12436 0	C: 14777 0	C: 00000 1	07476 0	07477 1

23,7500	CKSM 50424 0	0	0	0	0	0	0
23,7510	0	0	0	0	0	0	0
23,7520	0	0	0	0	0	0	0
23,7530	0	0	0	0	0	0	0

23,7540	0	0	0	0	0	0	0
23,7550	0	0	0	0	0	0	0
23,7560	0	0	0	0	0	0	0
23,7570	0	0	0	0	0	0	0

23,7600	0	0	0	0	0	0	0
23,7610	0	0	0	0	0	0	0
23,7620	0	0	0	0	0	0	0
23,7630	0	0	0	0	0	0	0

23,7640	0	0	0	0	0	0	0	0
23,7650	0	0	0	0	0	0	0	0
23,7660	0	0	0	0	0	0	0	0
23,7670	0	0	0	0	0	0	0	0

23,7700	0	0	0	0	0	0	0	0
23,7710	0	0	0	0	0	0	0	0
23,7720	0	0	0	0	0	0	0	0
23,7730	0	0	0	0	0	0	0	0

23,7740	0	0	0	0	0	0	0	0
23,7750	0	0	0	0	0	0	0	0
23,7760	0	0	0	0	0	0	0	0
23,7770	0	0	0	0	0	0	0	0

OCTAL LISTING OF PARAGRAPH # 120, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

24,6000	05654 0	C: 30223 1	02362 1	C: 00011 1	03516 0	04000 0	I: 66776 1	C: 01463 1
24,6010	C: 01467 0	C: 33145 1	I: 45176 0	C: 01630 0	C: 33537 0	I: 45176 0	C: 01620 1	C: 33527 1
24,6020	I: 75176 0	C: 01632 1	C: 33115 1	I: 76776 0	C: 13450 1	I: 47576 0	C: 33541 1	I: 75176 0
24,6030	C: 01622 0	C: 33115 1	I: 76776 0	C: 13450 1	I: 47576 0	C: 33531 0	I: 77576 0	05654 0
24,6040	C: 30331 0	03066 1	44516 0	02312 0	C: 00004 0	02124 1	36111 0	70647 0
24,6050	10000 0	02124 1	04000 0	I: 75176 0	C: 01345 1	C: 33323 0	I: 75575 1	I: 76776 0
24,6060	C: 00007 0	C: 12001 0	I: 75176 0	C: 01315 1	C: 33345 0	I: 47575 0	I: 74765 0	C: 01323 1
24,6070	C: 00007 0	C: 33315 0	I: 76776 0	C: 12041 1	I: 71174 0	I: 66756 0	I: 77576 0	C: 01331 1
24,6100	C: 10113 0	C: 10106 1	03416 1	C: 00001 0	02124 1	I: 77576 0	03430 0	C: 00001 0
24,6110	02124 1	C: 00016 0	C: 00262 1	C: 25271 1	03416 1	C: 40000 0	36142 0	51461 0
24,6120	36141 0	51460 1	36140 1	51467 0	05742 0	C: 10552 1	32146 0	02046 1
24,6130	C: 66621 1	35503 1	02312 0	C: 00002 0	35502 0	02312 0	C: 00004 0	02256 1
24,6140	C: 50143 1	C: 00001 0	C: 30426 1	03373 0	C: 40400 1	36175 1	02173 0	C: 50154 1
24,6150	34477 1	02312 0	C: 00004 0	02256 1	36177 0	61557 1	51461 0	35501 0
24,6160	66176 1	61556 0	51460 1	36200 0	51467 0	05742 0	C: 10552 1	34475 0
24,6170	02312 0	C: 00004 0	03405 0	C: 40400 1	02256 1	C: 01750 1	C: 77776 1	C: 43347 0
24,6200	C: 50201 1	36352 0	02173 0	C: 50327 1	03373 0	C: 40400 1	34373 1	02046 1
24,6210	C: 50225 1	35362 0	02312 0	C: 00004 0	40036 0	50666 1	44516 0	02312 0
24,6220	C: 00005 1	34513 1	02312 0	C: 00004 0	02256 1	02362 1	C: 00022 1	32566 0
24,6230	50672 1	04000 0	I: 43574 0	I: 70742 1	I: 66776 1	C: 00023 0	C: 10310 1	C: 01463 1
24,6240	C: 01557 1	C: 10351 1	C: 01115 0	C: 33211 0	I: 52775 0	I: 44776 1	C: 01101 0	C: 01052 1
24,6250	C: 00002 0	C: 33656 1	I: 52775 0	I: 44776 1	C: 01107 0	C: 01052 1	C: 00002 0	C: 33664 0
24,6260	I: 77576 0	02276 0	C: 03504 0	04000 0	I: 75176 0	C: 01656 0	C: 33101 1	I: 75176 0
24,6270	C: 01664 1	C: 33107 1	I: 76776 0	C: 20010 1	I: 75176 0	C: 01223 0	C: 32774 1	I: 44776 1
24,6300	C: 01215 0	C: 00002 0	C: 32766 1	I: 76575 1	I: 76776 0	C: 20265 1	C: 21643 0	I: 76776 0
24,6310	C: 22001 0	I: 66775 1	I: 43775 0	C: 01457 0	C: 10356 0	C: 10324 0	02362 1	C: 00023 0
24,6320	02276 0	C: 01104 0	03151 1	I: 77576 0	03474 0	C: 10000 0	06316 0	03405 0
24,6330	C: 40400 1	36353 1	02173 0	C: 50335 1	02256 1	36354 0	02173 0	C: 50357 0
24,6340	03405 0	C: 40400 1	03430 0	C: 20000 0	33553 1	02312 0	C: 00004 0	02256 1
24,6350	C: 00000 1	C: 27340 0	C: 01750 1	C: 24404 1	C: 00764 1	C: 34631 1	C: 23146 0	36456 0
24,6360	05750 0	03452 1	C: 40000 0	03462 1	C: 04000 0	41465 0	50667 0	34475 0
24,6370	02312 0	C: 00005 1	34502 1	70645 1	10000 0	06433 0	03504 0	C: 00020 0

OCTAL LISTING OF PARAGRAPH # 124, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

25,6000	I: 77576 0	20017 0	40047 0	51314 0	40050 0	51316 1	40051 1	51320 1
25,6010	20016 1	06023 0	I: 77576 0	20017 0	40700 1	51314 0	40701 0	51316 1
25,6020	40702 0	51320 1	20016 1	40647 0	74501 0	10000 0	06037 0	34302 1
25,6030	71314 1	50022 1	40022 0	40022 0	40022 0	30022 1	31314 0	04000 0
25,6040	I: 55576 0	C: 00003 1	I: 42175 1	I: 47171 0	C: 02645 1	C: 20304 1	C: 36645 0	I: 47575 0
25,6050	I: 57176 0	C: 36675 0	I: 54176 0	C: 02645 1	C: 36711 0	I: 51574 0	I: 65116 1	I: 71775 1
25,6060	C: 12043 0	C: 01343 1	C: 00003 1	C: 12070 0	03007 0	C: 01407 0	04000 0	I: 40576 1
25,6070	C: 77760 0	I: 45575 1	I: 76776 0	C: 00051 0	C: 04353 0	I: 43575 1	I: 76576 1	C: 00043 0
25,6100	C: 12103 0	C: 20721 1	I: 75175 0	I: 76421 1	C: 01521 0	C: 20624 0	C: 00051 0	I: 64775 0
25,6110	I: 47176 1	C: 01333 0	C: 01343 1	I: 56776 1	C: 01335 0	C: 00002 0	I: 64775 0	I: 41022 1
25,6120	C: 01341 0	C: 01343 1	C: 00002 0	C: 33477 0	I: 64775 0	I: 63776 1	C: 01331 1	C: 01335 0
25,6130	C: 00002 0	C: 32033 0	I: 47575 0	I: 64776 0	C: 01333 0	I: 64775 0	I: 66776 1	C: 01337 1
25,6140	C: 01341 0	I: 64775 0	I: 47176 1	C: 01331 1	C: 01343 1	I: 64776 0	C: 01337 1	C: 01333 0
25,6150	I: 64774 1	I: 70603 0	I: 44776 1	C: 01341 0	C: 00033 1	C: 77777 0	C: 00002 0	C: 33513 0
25,6160	I: 47575 0	I: 41622 1	C: 01477 1	C: 00002 0	C: 33505 1	I: 40576 1	I: 75776 0	C: 01411 1
25,6170	C: 12241 0	I: 75775 0	I: 46776 0	C: 01425 0	C: 12237 1	C: 33477 0	I: 75176 0	C: 01417 1
25,6200	C: 33505 1	I: 75776 0	C: 01411 1	C: 12237 1	I: 75775 0	I: 50776 1	C: 01425 0	C: 12241 0
25,6210	C: 33513 0	I: 40576 1	I: 75776 0	C: 01477 1	C: 12241 0	I: 75775 0	I: 50776 1	C: 01513 1
25,6220	C: 12237 1	C: 33367 0	I: 75176 0	C: 01505 0	C: 33375 0	I: 75776 0	C: 01477 1	C: 12237 1
25,6230	I: 75775 0	I: 74776 1	C: 01513 1	C: 12241 0	C: 33403 0	I: 40576 1	C: 21333 1	C: 13542 0
25,6240	C: 32654 1	C: 30735 0	I: 64776 0	C: 00041 1	C: 01341 0	I: 64775 0	I: 65712 0	C: 00045 0
25,6250	C: 01333 0	C: 77777 0	C: 01343 1	C: 32027 0	I: 47574 1	I: 64716 0	I: 65776 1	C: 01335 0
25,6260	C: 00002 0	C: 00043 0	C: 32031 1	I: 64776 0	C: 00041 1	C: 01333 0	I: 64775 0	I: 70716 0
25,6270	C: 00045 0	C: 01341 0	C: 77777 0	C: 00002 0	C: 32033 0	I: 75175 0	I: 40576 1	C: 00027 1
25,6300	I: 64775 0	I: 63776 1	C: 01343 1	C: 01347 0	C: 00002 0	C: 32033 0	I: 47575 0	I: 64776 0
25,6310	C: 01331 1	I: 64775 0	I: 66776 1	C: 01337 1	C: 01351 1	I: 64776 0	C: 00033 1	C: 01337 1
25,6320	I: 64775 0	I: 70776 0	C: 01331 1	C: 01351 1	I: 56776 1	C: 01345 1	C: 00002 0	I: 64774 1
25,6330	I: 70603 0	I: 44776 1	C: 01335 0	C: 01347 0	C: 77777 0	C: 00002 0	C: 33353 1	I: 40576 1
25,6340	I: 64776 0	C: 00045 0	C: 01331 1	I: 64775 0	I: 66712 0	C: 00043 0	C: 01337 1	C: 77777 0
25,6350	C: 01343 1	C: 33347 1	I: 47574 1	I: 64633 0	I: 63742 0	C: 01335 0	C: 00002 0	C: 00041 1
25,6360	C: 33345 0	I: 64776 0	C: 00043 0	C: 01331 1	I: 64775 0	I: 70716 0	C: 00045 0	C: 01337 1
25,6370	C: 77777 0	C: 00002 0	C: 33351 0	I: 40576 1	I: 45575 1	I: 75572 0	C: 00052 0	C: 00005 1

OCTAL LISTING OF PARAGRAPH # 125, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

25,6400	C: 12013 0	I: 76776 0	C: 12243 1	I: 43575 1	I: 56776 1	C: 00043 0	C: 12413 1	C: 00041 1
25,6410	C: 00005 1	C: 32041 0	I: 47574 1	I: 44771 0	I: 44576 0	C: 00002 0	C: 20416 0	C: 00052 0
25,6420	I: 75176 0	C: 01417 1	C: 33411 0	I: 45575 1	I: 73421 1	C: 00052 0	C: 01042 0	C: 01471 1
25,6430	I: 47575 0	I: 74622 1	C: 01411 1	C: 00005 1	I: 75775 0	I: 50766 0	C: 01010 1	C: 01030 0
25,6440	C: 77777 0	C: 15573 1	C: 33411 0	I: 44775 1	I: 74752 1	C: 01417 1	C: 00002 0	C: 00774 0
25,6450	C: 00123 1	C: 33353 1	I: 44576 0	C: 00052 0	I: 75575 1	I: 74572 1	C: 00001 0	C: 00002 0
25,6460	C: 12466 0	I: 53575 0	I: 52576 1	C: 00003 1	C: 00002 0	I: 44170 1	I: 62732 0	I: 51130 1
25,6470	I: 65122 0	I: 62272 1	I: 53056 1	I: 75776 0	C: 03325 0	C: 01024 0	C: 15565 0	C: 03315 0
25,6500	C: 13376 1	C: 03325 0	C: 00006 1	C: 00050 1	C: 01016 1	I: 45174 1	I: 64312 0	I: 53176 1
25,6510	C: 13542 0	C: 03325 0	C: 01026 1	I: 41773 1	I: 73006 0	I: 75642 0	I: 44776 1	C: 01016 1
25,6520	C: 01107 0	C: 01016 1	C: 77777 0	C: 77777 0	C: 00004 0	C: 33417 0	I: 76776 0	C: 12431 1
25,6530	I: 41775 1	I: 44776 1	C: 00766 0	C: 00774 0	C: 00002 0	I: 47575 0	I: 73176 0	C: 33367 0
25,6540	I: 66775 1	I: 56776 1	C: 13131 0	C: 01024 0	C: 00003 1	I: 41775 1	I: 44776 1	C: 01367 1
25,6550	C: 01016 1	C: 00002 0	C: 33375 0	I: 47575 0	I: 42776 1	C: 00774 0	I: 42774 0	I: 56712 0
25,6560	I: 64776 0	C: 00774 0	C: 01016 1	C: 00004 0	C: 77777 0	C: 13131 0	I: 67175 0	I: 62776 0
25,6570	C: 00001 0	C: 13376 1	I: 67175 0	I: 56712 0	C: 00774 0	C: 00005 1	C: 13376 1	I: 62774 1
25,6600	I: 66722 0	I: 65776 1	C: 13133 1	C: 01024 0	C: 77777 0	C: 13131 0	C: 13133 1	I: 47574 1
25,6610	I: 73653 0	I: 64716 0	C: 13115 0	C: 13153 1	C: 00003 1	I: 66775 1	I: 43776 0	C: 13157 0
25,6620	C: 77777 0	C: 13104 0	I: 64774 1	I: 70722 1	I: 70716 0	C: 00017 1	C: 13147 1	C: 13145 0
25,6630	C: 00017 1	C: 13143 0	C: 00005 1	C: 32025 1	I: 47575 0	I: 55166 0	C: 01531 1	I: 57175 0
25,6640	I: 63776 1	C: 00025 0	C: 00002 0	I: 41775 1	I: 73176 0	C: 01531 1	C: 01016 1	C: 32027 0
25,6650	I: 47574 1	I: 41766 0	I: 50622 1	C: 01531 1	C: 77777 0	C: 77777 0	C: 00002 0	C: 33433 0
25,6660	I: 64771 1	I: 62732 0	I: 73653 0	I: 64726 0	I: 61746 0	I: 76472 1	C: 13131 0	C: 77777 0
25,6670	C: 77777 0	C: 13135 1	C: 13121 1	C: 01024 0	C: 77777 0	C: 77777 0	C: 13125 0	C: 20265 1
25,6700	C: 00010 0	I: 47575 0	I: 51142 1	C: 13141 1	I: 47574 1	I: 66633 1	I: 62776 0	C: 13137 0
25,6710	C: 00003 1	I: 42774 0	I: 63732 1	I: 43776 0	C: 01016 1	C: 01433 1	C: 00003 1	C: 00005 1
25,6720	C: 13111 1	I: 56775 1	I: 62766 1	C: 00001 0	C: 00006 1	C: 00003 1	C: 01375 1	I: 75775 0
25,6730	I: 50762 1	C: 01016 1	C: 00005 1	C: 77777 0	C: 01433 1	I: 47575 0	I: 71176 1	C: 32003 0
25,6740	I: 71174 0	I: 75612 0	I: 56776 1	C: 00774 0	C: 01375 1	C: 00027 1	C: 00002 0	I: 71174 0
25,6750	I: 65716 1	I: 65176 1	C: 01425 0	C: 00003 1	C: 00002 0	I: 47576 0	C: 32001 1	I: 64773 0
25,6760	I: 56712 0	I: 70706 1	I: 71672 1	C: 01030 0	C: 00003 1	C: 00016 0	C: 77777 0	C: 13155 1
25,6770	C: 77777 0	C: 13066 0	C: 00004 0	C: 33441 0	I: 47575 0	I: 75776 0	C: 01367 1	I: 75775 0

OCTAL LISTING OF PARAGRAPH # 126, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

25,7000	I: 71176 1	C: 01002 1	C: 21742 0	C: 32005 0	I: 47573 0	I: 62722 1	I: 63766 0	I: 50753 0
25,7010	C: 01030 0	C: 13167 0	C: 00006 1	C: 01375 1	I: 62775 0	I: 63142 0	C: 13165 1	C: 01024 0
25,7020	C: 01443 0	I: 47575 0	I: 55166 0	C: 01016 1	I: 57174 1	I: 75762 0	I: 44776 1	C: 00023 0
25,7030	C: 00015 0	C: 77777 0	C: 00002 0	I: 64773 0	I: 62716 0	I: 71672 1	I: 75771 1	C: 00003 1
25,7040	C: 00005 1	C: 00001 0	C: 00002 0	C: 13074 0	C: 00002 0	C: 77777 0	C: 20265 1	C: 33353 1
25,7050	I: 75176 0	C: 00007 0	C: 33425 1	I: 75176 0	C: 15575 1	C: 33411 0	I: 44576 0	C: 00052 0
25,7060	04000 0	I: 76575 1	I: 76776 0	C: 20265 1	C: 25657 1	I: 53776 1	C: 13161 0	C: 00015 0
25,7070	C: 33441 0	I: 76776 0	C: 12775 1	I: 75175 0	I: 75771 1	C: 77777 0	C: 15573 1	C: 20265 1
25,7100	C: 33353 1	I: 76776 0	C: 13051 1	I: 45176 0	C: 13151 0	C: 32025 1	I: 76776 0	C: 12635 1
25,7110	I: 77576 0	03007 0	C: 01403 1	07060 0	I: 77576 0	03007 0	C: 01404 0	07060 0
25,7120	I: 77576 0	03007 0	C: 01405 1	07060 0	I: 77576 0	03007 0	C: 01406 1	07060 0
25,7130	C: 06145 1	C: 33650 1	C: 02000 0	C: 00000 1	C: 00400 0	C: 00000 1	C: 00010 0	C: 00000 1
25,7140	C: 00004 0	C: 00000 1	C: 06010 0	C: 35650 1	C: 51120 0	C: 56532 0	C: 25641 0	C: 36206 0
25,7150	C: 00467 1	C: 16603 0	C: 33537 0	C: 15244 1	C: 00000 1	C: 37200 1	C: 20607 1	C: 05301 0
25,7160	C: 03775 1	C: 17232 1	C: 06052 0	C: 12650 1	C: 03025 0	C: 05324 1	C: 36044 1	C: 03661 0
25,7170	I: 45175 0	I: 76776 0	C: 13376 1	C: 13201 0	I: 45175 0	I: 63576 0	C: 13400 1	C: 00007 0
25,7200	I: 47574 1	I: 62714 1	I: 53176 1	C: 01024 0	C: 00021 1	I: 41775 1	I: 73166 1	C: 01016 1
25,7210	C: 01323 1	C: 33417 0	I: 76776 0	C: 12431 1	I: 62775 0	I: 63376 0	C: 13400 1	C: 01024 0
25,7220	C: 00011 1	I: 73176 0	C: 01323 1	C: 33367 0	I: 47572 1	I: 42742 0	I: 64716 0	I: 61742 1
25,7230	I: 53176 1	C: 01016 1	C: 15565 0	C: 00035 1	C: 00004 0	C: 77777 0	C: 13263 1	C: 32033 0
25,7240	I: 47575 0	I: 70766 1	C: 13261 0	C: 01367 1	I: 66774 0	I: 75642 0	I: 75622 0	C: 00033 1
25,7250	C: 13261 0	C: 01016 1	C: 77777 0	C: 00037 0	C: 00003 1	C: 33417 0	I: 76776 0	C: 12431 1
25,7260	C: 01000 0	C: 00000 1	C: 00020 0	C: 00000 1	I: 63775 1	I: 53176 1	C: 13376 1	C: 00002 0
25,7270	I: 45175 0	I: 56376 0	C: 00037 0	C: 00025 0	I: 75174 1	I: 45232 0	I: 73026 1	C: 00766 0
25,7300	C: 00025 0	C: 01323 1	C: 00002 0	I: 45775 0	I: 46776 0	C: 01016 1	C: 00002 0	C: 33367 0
25,7310	I: 47575 0	I: 50776 1	C: 01016 1	C: 33375 0	I: 71174 0	I: 70742 1	I: 56776 1	C: 01323 1
25,7320	C: 00037 0	C: 77777 0	C: 00002 0	C: 33433 0	I: 47575 0	I: 66676 0	C: 00037 0	C: 00050 1
25,7330	C: 33435 0	I: 47575 0	I: 56326 0	C: 00016 0	C: 01437 0	I: 64773 0	I: 61711 1	I: 63253 0
25,7340	I: 53766 0	C: 01437 0	C: 01435 1	C: 77777 0	C: 00021 1	C: 00002 0	C: 01425 0	C: 01375 1
25,7350	I: 56775 1	I: 65672 1	C: 01433 1	C: 00007 0	C: 01437 0	C: 00005 1	I: 64772 1	I: 61653 0
25,7360	I: 56766 0	I: 50622 1	I: 75776 0	C: 01437 0	C: 01433 1	C: 77777 0	C: 00007 0	C: 01367 1
25,7370	C: 77777 0	C: 00012 1	C: 33417 0	I: 76776 0	C: 12431 1	C: 04507 1	C: 33420 1	C: 03516 0

OCTAL LISTING OF PARAGRAPH # 127, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

25,7400	C: 10273 0	I: 73176 0	C: 01353 0	C: 33333 1	I: 47574 1	I: 40622 0	I: 46776 0	C: 01411 1
25,7410	C: 00003 1	C: 01411 1	I: 47571 1	I: 71110 1	I: 51126 0	I: 53120 1	I: 63766 0	I: 50753 0
25,7420	C: 03631 0	C: 21043 0	C: 03631 0	C: 00003 1	C: 01353 0	C: 33367 0	I: 47574 1	I: 41753 0
25,7430	I: 47176 1	C: 01016 1	C: 33375 0	I: 43575 1	I: 75033 0	C: 00054 0	C: 13442 1	C: 01375 1
25,7440	C: 33375 0	I: 47574 1	I: 41753 0	I: 47176 1	C: 01367 1	C: 33403 0	I: 40576 1	I: 41775 1
25,7450	I: 44776 1	C: 01044 0	C: 01115 0	C: 00003 1	C: 33123 1	I: 47575 0	I: 41622 1	C: 01044 0
25,7460	C: 00002 0	C: 33131 1	I: 72775 1	I: 62746 0	C: 00123 1	C: 01145 0	C: 13520 1	C: 13507 1
25,7470	C: 32037 1	I: 47574 1	I: 55132 1	I: 75776 0	C: 15573 1	C: 01131 0	I: 57174 1	I: 75642 0
25,7500	I: 50776 1	C: 00037 0	C: 01123 0	C: 01115 0	C: 33215 1	I: 40576 1	I: 53775 1	I: 65776 1
25,7510	C: 13520 1	C: 01145 0	C: 01145 0	C: 33145 1	I: 43776 0	C: 13520 1	C: 13463 1	C: 01015 1
25,7520	C: 34732 0	C: 20304 1	C: 23351 1	C: 37200 1	C: 00000 1	C: 21601 0	C: 34056 0	C: 24605 1
25,7530	C: 15301 1	C: 30523 0	C: 00147 0	C: 00134 1	C: 27361 0	C: 00113 1	C: 26154 0	C: 00216 1
25,7540	C: 33625 0	C: 00450 0	C: 37342 0	07543 1	07544 0	CKSM 61003 0	@	@
25,7550	@	@	@	@	@	@	@	@
25,7560	@	@	@	@	@	@	@	@
25,7570	@	@	@	@	@	@	@	@
25,7600	@	@	@	@	@	@	@	@
25,7610	@	@	@	@	@	@	@	@
25,7620	@	@	@	@	@	@	@	@
25,7630	@	@	@	@	@	@	@	@
25,7640	@	@	@	@	@	@	@	@
25,7650	@	@	@	@	@	@	@	@
25,7660	@	@	@	@	@	@	@	@
25,7670	@	@	@	@	@	@	@	@
25,7700	@	@	@	@	@	@	@	@
25,7710	@	@	@	@	@	@	@	@
25,7720	@	@	@	@	@	@	@	@
25,7730	@	@	@	@	@	@	@	@
25,7740	@	@	@	@	@	@	@	@
25,7750	@	@	@	@	@	@	@	@
25,7760	@	@	@	@	@	@	@	@
25,7770	@	@	@	@	@	@	@	@

OCTAL LISTING OF PARAGRAPH # 130, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

26,6000	I: 77576 0	03440 1	C: 12000 1	03452 1	C: 04600 0	04000 0	I: 75575 1	I: 45572 0
26,6010	C: 00007 0	C: 01472 1	C: 12013 0	I: 76776 0	C: 12110 1	I: 76776 0	C: 12213 1	I: 74575 0
26,6020	I: 76576 1	C: 00001 0	C: 20265 1	I: 42774 0	I: 65132 1	I: 43776 0	C: 01367 1	C: 01411 1
26,6030	C: 15655 0	C: 14102 1	I: 41775 1	I: 73176 0	C: 01367 1	C: 01411 1	C: 33323 0	I: 65175 1
26,6040	I: 66616 0	C: 01325 1	C: 15543 1	C: 15520 1	I: 41775 1	I: 41753 0	C: 01323 1	C: 15601 1
26,6050	C: 01323 1	I: 45176 0	C: 15575 1	C: 32020 1	I: 47575 0	I: 41776 1	C: 01411 1	I: 41775 1
26,6060	I: 42616 0	C: 00001 0	C: 01367 1	C: 77777 0	C: 14351 0	I: 50775 1	I: 42616 0	C: 01367 1
26,6070	C: 01411 1	C: 00001 0	C: 14076 0	I: 42576 0	C: 00050 1	I: 76776 0	C: 14201 1	I: 76776 0
26,6100	C: 14316 0	I: 42775 1	I: 73776 0	C: 01367 1	C: 01411 1	C: 15351 1	I: 47575 0	I: 66756 0
26,6110	C: 15541 0	C: 15401 0	I: 42773 1	I: 75622 0	I: 74633 1	I: 73012 0	C: 01425 0	C: 01367 1
26,6120	C: 01367 1	C: 00003 1	C: 01425 0	C: 01403 1	I: 47575 0	I: 66616 0	C: 15655 0	C: 14171 0
26,6130	I: 41775 1	I: 42776 1	C: 01403 1	C: 01425 0	C: 01367 1	I: 63775 1	I: 61056 0	C: 00001 0
26,6140	C: 00002 0	C: 33455 0	I: 65174 0	I: 66756 0	I: 76776 0	C: 01371 0	C: 15545 1	C: 14152 1
26,6150	C: 15240 0	I: 53775 1	I: 75776 0	C: 21043 0	C: 01455 1	C: 01367 1	C: 33323 0	I: 65176 1
26,6160	C: 01455 1	C: 33455 0	I: 77576 0	03440 1	C: 04000 0	04000 0	I: 44576 0	C: 01472 1
26,6170	I: 42575 0	I: 76776 0	C: 00046 0	C: 12167 1	I: 76776 0	C: 12072 1	I: 44576 0	C: 01472 1
26,6200	I: 45574 0	I: 76455 1	I: 65103 0	C: 01455 1	C: 15645 1	C: 00003 1	C: 00003 1	I: 47575 0
26,6210	I: 65776 1	C: 15557 1	I: 55176 1	C: 00025 0	I: 57174 1	I: 62722 1	I: 61072 0	C: 00025 0
26,6220	C: 77777 0	C: 15551 1	C: 00002 0	I: 45176 0	C: 15563 0	I: 43176 0	C: 00047 1	I: 45174 1
26,6230	I: 47056 1	I: 70633 0	C: 15563 0	I: 45175 0	I: 43433 1	C: 15563 0	C: 00050 1	C: 14242 0
26,6240	C: 32033 0	I: 47575 0	I: 53776 1	C: 01325 1	I: 47575 0	I: 66776 1	C: 00031 0	I: 43175 0
26,6250	I: 47776 1	C: 00047 1	C: 14300 1	I: 66776 1	C: 00035 1	C: 00027 1	C: 32007 1	I: 70776 0
26,6260	C: 00027 1	C: 32010 1	I: 66775 1	I: 43776 0	C: 00023 0	C: 15561 1	C: 14314 1	I: 75575 1
26,6270	I: 76433 1	C: 00001 0	C: 15651 1	C: 00023 0	C: 32023 1	I: 76776 0	C: 14210 1	I: 66776 1
26,6300	C: 00035 1	C: 00027 1	C: 32011 0	I: 70774 1	I: 73535 0	I: 75576 1	C: 00035 1	C: 00027 1
26,6310	C: 00116 1	C: 00012 1	C: 00001 0	I: 44576 0	C: 01455 1	I: 43176 0	C: 00007 0	C: 34025 1
26,6320	I: 43175 0	I: 62576 1	C: 00010 0	C: 77776 1	C: 34027 0	I: 43175 0	I: 73611 0	C: 00047 1
26,6330	C: 14341 1	C: 00044 1	I: 43176 0	C: 00011 1	C: 32015 1	I: 43176 0	C: 00012 1	C: 32016 1
26,6340	I: 45175 0	I: 43433 1	C: 15573 1	C: 00050 1	C: 14347 1	C: 32020 1	I: 47576 0	C: 32020 1
26,6350	I: 75575 1	I: 42576 0	C: 00001 0	C: 00051 0	I: 76575 1	I: 77576 0	C: 15645 1	03452 1
26,6360	C: 00400 0	04000 0	I: 64175 0	I: 65616 0	C: 02761 0	C: 15545 1	C: 14714 0	I: 43575 1
26,6370	I: 42576 0	C: 00051 0	C: 14375 0	C: 00045 0	I: 44175 1	I: 43611 0	C: 02761 0	C: 14402 1

OCTAL LISTING OF PARAGRAPH # 131, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

26,6400	C: 00050 1	I: 43174 1	I: 43556 0	I: 76776 0	C: 00020 0	C: 00050 1	C: 14412 0	C: 14714 0
26,6410	C: 14416 1	I: 47575 0	I: 47616 0	C: 14416 1	C: 14714 0	I: 42776 1	C: 01411 1	C: 00001 0
26,6420	I: 42774 0	I: 66615 0	I: 47176 1	C: 01367 1	C: 00001 0	C: 77777 0	C: 00050 1	C: 14432 1
26,6430	C: 33433 0	I: 47575 0	I: 43433 1	C: 00051 0	C: 14437 1	C: 33433 0	I: 47575 0	I: 43776 0
26,6440	C: 14714 0	I: 43174 1	I: 66615 0	I: 47176 1	C: 00050 1	C: 15567 1	C: 00051 0	C: 14452 1
26,6450	C: 32051 1	I: 47576 0	C: 32051 1	I: 45175 0	I: 43433 1	C: 15573 1	C: 00051 0	C: 14462 1
26,6460	C: 33433 0	I: 47575 0	I: 43433 1	C: 00050 1	C: 14467 1	C: 33433 0	I: 47575 0	I: 53776 1
26,6470	C: 01325 1	C: 33433 0	I: 64176 0	C: 02761 0	I: 56774 0	I: 66711 0	I: 73776 0	C: 00023 0
26,6500	C: 00002 0	C: 15541 0	C: 77776 1	C: 14511 1	I: 76776 0	C: 14201 1	I: 76776 0	C: 14673 0
26,6510	I: 74173 1	I: 41604 0	I: 73033 0	I: 43433 1	C: 02755 1	C: 15601 1	C: 02755 1	C: 00050 1
26,6520	C: 14523 0	C: 32025 1	I: 73575 1	I: 47576 0	C: 00047 1	I: 61175 0	I: 56776 1	C: 00023 0
26,6530	C: 00002 0	I: 47575 0	I: 66673 0	C: 15553 0	I: 66775 1	I: 57122 1	C: 15555 0	C: 00033 1
26,6540	I: 70775 0	I: 57176 0	C: 00033 1	C: 15553 0	I: 70774 1	I: 57122 1	I: 61653 0	C: 00033 1
26,6550	C: 15555 0	C: 32045 1	I: 45176 0	C: 21043 0	C: 32041 0	I: 76575 1	I: 76526 1	C: 15643 1
26,6560	C: 20504 1	C: 15565 0	C: 32033 0	I: 42776 1	C: 01323 1	C: 00025 0	I: 74172 0	I: 41753 0
26,6570	I: 42633 1	I: 63703 0	I: 56656 1	C: 02755 1	C: 01323 1	C: 00025 0	C: 00002 0	C: 00002 0
26,6600	C: 33455 0	I: 66776 1	C: 01455 1	C: 00033 1	C: 34026 1	I: 76575 1	I: 70776 0	C: 15647 0
26,6610	C: 01455 1	C: 34030 0	I: 74175 1	I: 42723 1	C: 02755 1	C: 00001 0	I: 65175 1	I: 61176 0
26,6620	C: 00003 1	I: 47574 1	I: 70663 0	I: 64716 0	C: 15557 1	C: 00033 1	C: 00002 0	C: 32021 0
26,6630	I: 66773 1	I: 65063 1	I: 64716 0	I: 65616 0	C: 15557 1	C: 77777 0	C: 77777 0	C: 00002 0
26,6640	C: 15571 0	C: 14714 0	I: 76776 0	C: 14201 1	I: 66775 1	I: 73776 0	C: 15571 0	C: 00021 1
26,6650	C: 14673 0	I: 44176 1	C: 00030 1	I: 43776 0	C: 01433 1	C: 14666 1	I: 43176 0	C: 00007 0
26,6660	C: 34026 1	I: 45176 0	C: 34030 0	I: 76776 0	C: 14714 0	I: 43176 0	C: 00010 0	C: 34030 0
26,6670	I: 76776 0	C: 14714 0	I: 43775 0	I: 41423 1	C: 01433 1	C: 14706 0	C: 00007 0	C: 34026 1
26,6700	I: 43176 0	C: 00012 1	C: 34030 0	I: 76776 0	C: 14714 0	I: 43176 0	C: 00011 1	C: 34026 1
26,6710	I: 43176 0	C: 00010 0	C: 34030 0	I: 43175 0	I: 70636 0	C: 00050 1	C: 13141 1	C: 14731 1
26,6720	I: 43574 0	I: 53411 0	I: 76776 0	C: 00051 0	C: 14731 1	C: 00023 0	C: 00051 0	C: 14355 1
26,6730	I: 43175 0	I: 47776 1	C: 00050 1	C: 15520 1	I: 76575 1	I: 41776 1	C: 15651 1	C: 01477 1
26,6740	C: 01367 1	I: 41775 1	I: 42776 1	C: 01323 1	C: 01367 1	C: 00025 0	C: 32023 1	I: 73173 0
26,6750	I: 42633 1	I: 63703 0	I: 53672 1	C: 77777 0	C: 01323 1	C: 00002 0	C: 77777 0	C: 00002 0
26,6760	C: 34032 1	I: 43175 0	I: 52565 0	C: 00050 1	C: 00001 0	C: 00001 0	C: 32037 1	I: 42175 1
26,6770	I: 66776 1	C: 00034 0	C: 00015 0	I: 47575 0	I: 66616 0	C: 15573 1	C: 14774 0	I: 47575 0

OCTAL LISTING OF PARAGRAPH # 132, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

26,7000	I: 70756 1	C: 15573 1	C: 15000 0	C: 34001 1	I: 73575 1	I: 62515 1	C: 00047 1	C: 77777 0
26,7010	C: 77776 1	I: 43175 0	I: 65756 0	C: 00050 1	C: 00037 0	C: 14770 1	I: 70775 0	I: 47776 1
26,7020	C: 00037 0	C: 15567 1	C: 15333 0	I: 66775 1	I: 73776 0	C: 00005 1	C: 00001 0	C: 15106 1
26,7030	I: 66775 1	I: 73776 0	C: 00003 1	C: 00001 0	C: 15061 1	I: 66775 1	I: 73776 0	C: 00003 1
26,7040	C: 00005 1	C: 15434 0	I: 66775 1	I: 73776 0	C: 00007 0	C: 00001 0	C: 15520 1	I: 43574 0
26,7050	I: 56732 1	I: 76776 0	C: 00044 1	C: 15317 0	C: 00001 0	C: 00002 0	C: 00007 0	C: 15204 0
26,7060	I: 66775 1	I: 73776 0	C: 00007 0	C: 00001 0	C: 15100 1	I: 43574 0	I: 70672 0	I: 66772 0
26,7070	C: 00044 1	C: 15317 0	C: 00001 0	C: 00003 1	C: 00002 0	C: 00007 0	C: 15204 0	I: 66775 1
26,7100	I: 73772 1	C: 00007 0	C: 00003 1	C: 15066 0	C: 15520 1	I: 66775 1	I: 73776 0	C: 00003 1
26,7110	C: 00001 0	C: 15131 0	I: 66775 1	I: 73776 0	C: 00007 0	C: 00005 1	C: 15520 1	I: 43574 0
26,7120	I: 56732 1	I: 76776 0	C: 00044 1	C: 15317 0	C: 00005 1	C: 00002 0	C: 00007 0	C: 15204 0
26,7130	I: 66775 1	I: 73776 0	C: 00003 1	C: 00005 1	C: 15151 0	I: 66775 1	I: 73776 0	C: 00007 0
26,7140	C: 00003 1	C: 15170 0	I: 66775 1	I: 43772 1	C: 00007 0	C: 00001 0	C: 15120 0	C: 15520 1
26,7150	I: 66775 1	I: 73776 0	C: 00007 0	C: 00005 1	C: 15176 0	I: 43574 0	I: 70672 0	I: 66772 0
26,7160	C: 00044 1	C: 15317 0	C: 00005 1	C: 00003 1	C: 00002 0	C: 00007 0	C: 15204 0	I: 66775 1
26,7170	I: 73772 1	C: 00007 0	C: 00005 1	C: 15520 1	C: 15120 0	I: 66775 1	I: 73772 1	C: 00007 0
26,7200	C: 00003 1	C: 15156 1	C: 15520 1	I: 47574 1	I: 66756 0	I: 66772 0	C: 15565 0	C: 15213 0
26,7210	C: 15565 0	C: 15225 0	I: 47574 1	I: 70616 1	I: 70772 1	C: 15573 1	C: 15222 1	C: 15565 0
26,7220	C: 15225 0	I: 47575 0	I: 66776 1	C: 15565 0	I: 47575 0	I: 63776 1	C: 00002 0	C: 33455 0
26,7230	I: 43576 1	C: 00045 0	C: 15657 1	I: 76776 0	C: 15240 0	I: 76776 0	C: 15657 1	I: 76574 0
26,7240	I: 41606 1	I: 73176 0	C: 20265 1	C: 01367 1	C: 01477 1	C: 01367 1	I: 53774 0	I: 75606 0
26,7250	I: 41753 0	C: 21043 0	C: 01371 0	C: 01367 1	C: 15601 1	C: 01367 1	I: 42775 1	I: 63703 0
26,7260	C: 00001 0	C: 00007 0	C: 00002 0	C: 32021 0	I: 65175 1	I: 66756 0	C: 01455 1	C: 00021 1
26,7270	C: 15316 1	I: 75174 1	I: 41612 1	I: 73776 0	C: 77777 0	C: 77777 0	C: 01367 1	C: 15310 1
26,7300	I: 45175 0	I: 43742 1	C: 01455 1	C: 15316 1	C: 21043 0	C: 33455 0	I: 40576 1	I: 45175 0
26,7310	I: 73732 0	C: 01455 1	C: 15316 1	C: 21043 0	C: 33455 0	I: 40576 1	I: 72575 0	I: 42576 0
26,7320	C: 00037 0	C: 00044 1	I: 43176 0	C: 00013 0	C: 32015 1	I: 73575 1	I: 67572 0	C: 00014 1
26,7330	C: 00016 0	C: 14731 1	I: 66775 1	I: 73776 0	C: 00003 1	C: 00001 0	C: 15520 1	I: 43574 0
26,7340	I: 56732 1	I: 76776 0	C: 00044 1	C: 15317 0	C: 00001 0	C: 00002 0	C: 00003 1	C: 15204 0
26,7350	I: 47575 0	I: 70616 1	C: 15653 0	C: 14033 1	I: 42774 0	I: 65132 1	I: 43776 0	C: 01367 1
26,7360	C: 15601 1	C: 15653 0	C: 15374 0	I: 41775 1	I: 41753 0	C: 01367 1	C: 15601 1	C: 01367 1
26,7370	C: 33323 0	I: 76776 0	C: 14040 0	I: 75176 0	C: 01403 1	C: 33323 0	I: 76776 0	C: 14040 0

OCTAL LISTING OF PARAGRAPH # 133, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

26,7400	I: 41775 1	I: 73176 0	C: 01367 1	C: 01411 1	C: 33323 0	I: 76776 0	C: 15520 1	I: 65175 1
26,7410	I: 66756 0	C: 01455 1	C: 15553 0	C: 15520 1	I: 53775 1	I: 75776 0	C: 21043 0	C: 01455 1
26,7420	C: 01367 1	C: 33323 0	I: 65176 1	C: 01455 1	C: 33455 0	I: 77576 0	03440 1	C: 04000 0
26,7430	04000 0	I: 44576 0	C: 01472 1	I: 43173 0	I: 65132 1	I: 67605 0	I: 43016 1	C: 00051 0
26,7440	C: 15567 1	C: 15502 1	C: 00051 0	C: 15460 1	I: 66775 1	I: 73776 0	C: 00007 0	C: 00001 0
26,7450	C: 15507 1	I: 56775 1	I: 66772 0	C: 00001 0	C: 00002 0	C: 00007 0	C: 15204 0	I: 66775 1
26,7460	I: 43776 0	C: 00007 0	C: 00005 1	C: 15472 1	I: 66775 1	I: 43776 0	C: 00007 0	C: 00003 1
26,7470	C: 15507 1	I: 70774 1	I: 56732 1	I: 76776 0	C: 00003 1	C: 00005 1	C: 00002 0	C: 00007 0
26,7500	C: 15204 0	I: 43175 0	I: 43772 1	C: 00051 0	C: 15445 0	C: 15460 1	I: 76776 0	C: 15530 0
26,7510	I: 45175 0	I: 56776 1	C: 01455 1	C: 00002 0	C: 33455 0	I: 76776 0	C: 15522 0	I: 76776 0
26,7520	C: 15530 0	I: 77576 0	03452 1	C: 04000 0	04000 0	I: 44576 0	C: 01472 1	I: 42775 1
26,7530	I: 63703 0	C: 01367 1	C: 01411 1	C: 00002 0	C: 33455 0	I: 40576 1	03062 0	03062 0
26,7540	C: 07772 1	C: 14276 1	C: 16203 1	C: 04007 1	C: 07207 0	C: 02705 1	C: 15666 0	C: 17272 0
26,7550	C: 30506 1	C: 22276 1	C: 00104 1	C: 10421 1	C: 02631 1	C: 23146 0	C: 02525 1	C: 12524 1
26,7560	C: 00210 1	C: 21041 1	C: 04000 0	C: 00000 1	C: 10000 0	C: 00000 1	C: 00002 0	C: 00000 1
26,7570	C: 06553 1	C: 06165 0	C: 20000 0	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1
26,7600	C: 00000 1	C: 00000 1	C: 20000 0	C: 00000 1	C: 00000 1	C: 00000 1	C: 15326 1	C: 14356 1
26,7610	C: 00000 1	C: 00000 1	C: 67222 1	C: 52116 0	C: 00000 1	C: 00000 1	C: 20000 0	C: 00000 1
26,7620	C: 00000 1	C: 00000 1	C: 10555 0	C: 25661 1	C: 00000 1	C: 00000 1	C: 15326 1	C: 14356 1
26,7630	C: 00133 0	C: 00327 1	C: 00243 1	C: 32703 1	C: 00525 0	C: 12374 1	33540 0	60067 0
26,7640	50123 1	04703 1	34475 0	07637 1	33542 1	07637 1	33554 0	07637 1
26,7650	33544 1	07637 1	C: 07777 1	C: 14256 0	C: 07737 0	C: 27116 1	I: 42774 0	I: 70616 1
26,7660	I: 41406 0	C: 01367 1	C: 01411 1	C: 15655 0	C: 15410 0	C: 15601 1	C: 01477 1	I: 53775 1
26,7670	I: 75753 1	C: 21043 0	C: 01501 1	C: 33323 0	I: 45175 0	I: 56776 1	C: 15557 1	C: 00002 0
26,7700	C: 33455 0	I: 76776 0	C: 15522 0	C: 14250 0	C: 00520 0	C: 14313 0	C: 27520 0	C: 00134 1
26,7710	C: 05075 0	I: 66774 0	I: 73615 1	I: 66616 0	C: 01465 1	C: 01672 0	C: 25302 1	C: 00023 0
26,7720	C: 25302 1	C: 15770 0	C: 15755 1	I: 52775 0	I: 44776 1	C: 01107 0	C: 01052 1	C: 00002 0
26,7730	C: 33306 1	I: 52775 0	I: 44776 1	C: 01101 0	C: 01052 1	C: 00003 1	C: 33300 1	I: 76776 0
26,7740	C: 21643 0	I: 77576 0	02276 0	C: 03005 1	03430 0	C: 20000 0	34476 0	51671 0
26,7750	51672 0	47771 0	05720 1	C: 61613 1	I: 77576 0	03007 0	C: 01411 1	34476 0
26,7760	51671 0	51672 0	03430 0	C: 20000 0	04000 0	I: 76776 0	C: 25302 1	C: 00000 1
26,7770	C: 00372 1	C: 65303 1	07772 1	07773 0	CKSM 45517 0	@	@	@

OCTAL LISTING OF PARAGRAPH # 134, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

27,6000	C: 61364 1	36000 1	06005 1	C: 61313 1	36003 1	05750 0	33535 1	02312 0
27,6010	C: 00005 1	37200 1	02173 0	C: 56004 0	41465 0	50667 0	36032 0	02173 0
27,6020	C: 57147 1	32152 0	02046 1	C: 56033 1	35503 1	51414 1	33536 1	02312 0
27,6030	C: 00005 1	02256 1	C: 00062 0	31350 0	65503 1	31350 0	34516 1	51035 0
27,6040	41001 0	51403 1	41003 1	51407 0	41005 1	51413 0	02276 0	C: 01705 1
27,6050	05654 0	C: 31017 0	04000 0	I: 76776 0	C: 21551 0	02276 0	C: 02105 1	04000 0
27,6060	I: 75776 0	C: 00774 0	C: 21132 1	C: 33315 0	I: 43574 0	I: 41766 0	I: 50776 1	C: 00010 0
27,6070	C: 16077 0	C: 01016 1	C: 01044 0	C: 21154 1	C: 01315 1	C: 33315 0	I: 47575 0	I: 73176 0
27,6100	C: 33570 0	I: 63776 1	C: 00035 1	C: 00003 1	C: 33343 0	I: 66776 1	C: 01343 1	C: 21055 1
27,6110	C: 33432 1	I: 63776 1	C: 00037 0	C: 00002 0	C: 33620 0	I: 42775 1	I: 63776 1	C: 01315 1
27,6120	C: 01016 1	C: 00002 0	C: 33347 1	I: 45176 0	C: 01363 0	C: 33416 1	I: 71174 0	I: 63722 0
27,6130	I: 47776 1	C: 01002 1	C: 00003 1	C: 21134 1	C: 21024 1	C: 33363 1	I: 41775 1	I: 73176 0
27,6140	C: 01315 1	C: 01016 1	C: 33562 0	I: 43575 1	I: 45176 0	C: 00010 0	C: 20773 0	C: 01465 1
27,6150	C: 33145 1	I: 76776 0	C: 13463 1	I: 47575 0	I: 42771 0	C: 01562 1	C: 20265 1	C: 33113 1
27,6160	I: 42773 1	I: 66616 0	I: 70716 0	I: 61176 0	C: 01215 0	C: 01016 1	C: 21064 0	C: 21031 0
27,6170	C: 21064 0	C: 00002 0	C: 33111 0	I: 77576 0	02276 0	C: 02205 1	04000 0	I: 44576 0
27,6200	C: 01375 1	C: 56216 1	I: 77576 0	36201 1	51374 0	02362 1	C: 00065 1	44516 0
27,6210	02312 0	C: 00003 1	40067 1	40000 0	50123 1	04000 0	I: 66773 1	I: 43605 0
27,6220	I: 66756 0	I: 41556 1	C: 01620 1	C: 01365 0	C: 16442 1	C: 01363 0	C: 01327 0	C: 16470 0
27,6230	C: 01347 0	C: 16524 0	I: 66775 1	I: 43776 0	C: 01363 0	C: 01602 1	C: 16671 0	I: 64774 1
27,6240	I: 70653 0	I: 65722 0	C: 01363 0	C: 01331 1	C: 01630 0	C: 21043 0	C: 01632 1	C: 33624 1
27,6250	I: 47575 0	I: 65722 0	C: 01365 0	C: 01341 0	C: 33626 0	I: 66775 1	I: 73635 0	C: 01612 0
27,6260	C: 01624 0	C: 16303 0	I: 47571 1	I: 64712 1	I: 70722 1	I: 64722 1	I: 62712 1	I: 65776 1
27,6270	C: 01436 1	C: 01440 0	C: 21162 1	C: 21164 1	C: 00001 0	C: 77777 0	C: 01434 0	C: 01624 0
27,6300	C: 01626 1	C: 33626 0	I: 66775 1	I: 73776 0	C: 01363 0	C: 21240 1	C: 16320 1	I: 66776 1
27,6310	C: 01101 0	C: 01327 0	I: 66775 1	I: 62776 0	C: 01363 0	C: 01327 0	C: 33622 1	I: 66773 1
27,6320	I: 64712 1	I: 70732 0	I: 64712 1	C: 01347 0	C: 01626 1	C: 01622 0	C: 21112 0	C: 01620 1
27,6330	C: 01624 0	C: 01622 0	C: 21114 0	I: 71773 1	I: 65132 1	I: 73722 1	I: 70656 0	C: 16372 0
27,6340	C: 00001 0	C: 21242 0	C: 16346 1	C: 21224 0	C: 21242 0	I: 63775 1	I: 70746 0	C: 77777 0
27,6350	C: 00005 1	C: 01341 0	C: 16372 0	I: 47576 0	C: 33223 1	I: 47573 0	I: 43605 0	I: 66756 0
27,6360	I: 64776 0	C: 16740 0	C: 01363 0	C: 21122 0	C: 16740 0	C: 21057 0	C: 33223 1	I: 76776 0
27,6370	C: 16740 0	I: 76575 1	I: 64772 1	C: 20607 1	C: 21144 0	C: 16354 1	I: 45176 0	C: 01225 0

OCTAL LISTING OF PARAGRAPH # 135, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

27,6400	C: 33325 0	I: 45176 0	C: 01365 0	C: 33371 1	I: 75575 1	I: 76535 0	C: 23010 1	C: 20265 1
27,6410	C: 01375 1	I: 64776 0	C: 01432 0	C: 21200 0	I: 64774 1	I: 62742 1	I: 64742 1	C: 21206 0
27,6420	C: 21116 1	C: 01620 1	C: 01347 0	C: 21130 0	I: 45176 0	C: 21116 1	I: 66773 1	I: 64742 1
27,6430	I: 63746 1	I: 76776 0	C: 01363 0	C: 77777 0	C: 21126 1	C: 77777 0	C: 00011 1	C: 16372 0
27,6440	C: 16354 1	I: 66774 0	I: 64742 1	I: 64742 1	C: 01620 1	C: 01365 0	C: 21144 0	C: 01347 0
27,6450	C: 21130 0	C: 21146 1	I: 66775 1	I: 51112 1	C: 01365 0	C: 01620 1	C: 21222 0	I: 51174 1
27,6460	I: 62706 1	I: 66776 1	C: 01365 0	C: 01343 1	C: 01602 1	I: 76776 0	C: 16427 1	I: 77576 0
27,6470	36521 1	51374 0	02362 1	C: 00066 1	04000 0	I: 66775 1	I: 73775 0	C: 01363 0
27,6500	C: 21142 0	C: 16516 1	03373 0	C: 40100 1	04000 0	I: 70775 0	I: 66756 0	C: 01327 0
27,6510	C: 21070 0	C: 01363 0	C: 16532 1	I: 77576 0	07032 1	I: 77576 0	03405 0	C: 40100 1
27,6520	06504 0	C: 56475 1	C: 56544 1	I: 66775 1	I: 66616 0	C: 01620 1	C: 01616 1	C: 21066 1
27,6530	C: 16233 1	I: 42575 0	I: 77576 0	C: 00011 1	44516 0	02312 0	C: 00003 1	36522 1
27,6540	51374 0	02362 1	C: 00067 0	04000 0	I: 66772 0	I: 73605 0	I: 43576 1	I: 41612 1
27,6550	I: 73775 0	C: 01620 1	C: 21120 1	C: 17006 1	C: 00007 0	C: 16700 1	C: 01215 0	C: 01016 1
27,6560	C: 01562 1	C: 16676 1	45642 0	51107 0	41617 1	21107 1	67203 1	10000 0
27,6570	11107 1	06563 1	64516 1	51420 0	21107 1	47203 0	21107 1	67204 0
27,6600	31420 0	25777 1	51420 0	51422 1	34477 1	51421 1	37201 0	61107 0
27,6610	51107 0	20000 0	47203 0	21107 1	67204 0	25777 1	41422 0	21107 1
27,6620	67203 1	21421 0	51100 1	11421 0	06605 1	41101 1	40000 0	61362 1
27,6630	25777 1	41105 0	51420 0	41346 0	60000 1	60000 1	60000 1	61103 1
27,6640	25777 1	41104 1	61420 0	61102 0	31106 1	04000 0	I: 43175 0	I: 56726 1
27,6650	C: 01107 0	C: 00004 0	C: 01111 1	I: 43173 0	I: 61716 0	I: 71742 0	I: 71776 1	C: 01101 0
27,6660	C: 77777 0	C: 00006 1	C: 16705 1	C: 21170 1	C: 16705 1	C: 33223 1	I: 76776 0	C: 16712 1
27,6670	I: 45176 0	C: 21144 0	C: 33223 1	I: 76776 0	C: 16740 0	I: 42576 0	C: 00007 0	I: 47176 1
27,6700	C: 21144 0	C: 33223 1	I: 76776 0	C: 16712 1	I: 76575 1	I: 64776 0	C: 20607 1	C: 21144 0
27,6710	C: 33223 1	I: 66774 0	I: 43742 1	I: 73722 1	C: 21202 1	C: 01363 0	C: 16740 0	C: 21202 1
27,6720	C: 16671 0	C: 21206 0	I: 64775 0	I: 70722 1	C: 01432 0	C: 21204 1	C: 21144 0	I: 62774 1
27,6730	I: 70653 0	I: 70756 1	C: 21210 1	C: 01343 1	C: 77777 0	C: 01347 0	C: 16671 0	I: 43575 1
27,6740	I: 64742 1	C: 00007 0	C: 16776 0	C: 01343 1	C: 21150 0	C: 21152 1	C: 32025 1	I: 65172 0
27,6750	I: 66756 0	I: 41456 0	I: 73605 0	I: 56776 1	C: 01223 0	C: 21176 1	C: 16766 1	C: 01113 0
27,6760	C: 01373 1	C: 17070 0	C: 00025 0	C: 00002 0	C: 32025 1	I: 53774 0	I: 66756 0	I: 76576 1
27,6770	C: 01113 0	C: 01373 1	C: 00025 0	C: 16776 0	C: 17045 0	I: 62774 1	I: 56703 0	I: 53776 1

OCTAL LISTING OF PARAGRAPH # 136, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

27,7000	C: 01223 0	C: 21144 0	C: 00002 0	C: 01373 1	C: 33473 1	I: 77576 0	34503 0	25777 1
27,7010	41472 0	50115 1	34504 1	25777 1	41352 0	60115 1	61450 1	50115 1
27,7020	07024 0	20000 0	34477 1	60115 1	20017 0	50700 0	44514 1	70675 1
27,7030	64514 0	50675 0	02276 0	C: 01405 1	03302 0	07042 0	37043 1	03100 0
27,7040	03250 0	03362 0	02124 1	C: 00662 0	41372 1	51372 0	11222 0	04703 1
27,7050	04703 1	07053 0	04703 1	11372 1	37202 0	07057 1	47202 1	61450 1
27,7060	51450 1	04703 1	20000 0	34477 1	61450 1	51450 1	04703 1	I: 53776 1
27,7070	C: 21176 1	C: 01223 0	C: 33223 1	I: 76776 0	C: 16776 0	32150 1	02046 1	C: 57101 0
27,7100	02256 1	04000 0	I: 76776 0	C: 21244 0	I: 76776 0	C: 04353 0	I: 66775 1	I: 77576 0
27,7110	C: 01521 0	C: 00017 1	30115 1	60000 1	50117 0	07121 1	20000 0	34477 1
27,7120	60117 0	31352 1	40000 0	50117 0	61352 1	50000 1	07131 0	40117 1
27,7130	51352 1	41522 1	40000 0	60000 1	30701 1	41524 1	40000 0	60000 1
27,7140	30702 1	20017 0	37146 0	02173 0	C: 57075 1	02124 1	C: 00003 1	40044 0
27,7150	21414 0	51400 1	40045 1	21414 0	51404 0	40046 1	21414 0	51410 0
27,7160	11414 0	07165 1	35503 1	51414 1	02256 1	51414 1	37177 1	02173 0
27,7170	C: 57147 1	02256 1	32151 0	02052 1	C: 57176 0	02256 1	02124 1	C: 00062 0
27,7200	C: 00310 0	C: 00017 1	C: 73777 1	C: 00000 1	C: 00153 0	C: 00527 1	C: 01235 1	C: 02337 1
27,7210	C: 03721 0	C: 05230 0	C: 06213 1	C: 10550 0	C: 11717 0	C: 13314 0	C: 14736 0	C: 16255 1
27,7220	C: 16457 0	C: 25570 1	C: 77573 0	C: 77573 0	C: 77516 0	C: 77360 1	C: 77106 0	C: 76516 1
27,7230	C: 76071 0	C: 75570 1	C: 74661 0	C: 74436 0	C: 73212 1	C: 71640 0	C: 54557 1	C: 40000 0
27,7240	C: 40000 0	C: 00000 1	C: 00000 1	C: 77632 0	C: 77563 1	C: 77354 0	C: 76712 1	C: 76066 0
27,7250	C: 75322 0	C: 73237 0	C: 72104 1	C: 70301 1	C: 65635 1	C: 57311 0	C: 50575 0	C: 50575 0
27,7260	C: 76265 1	C: 76265 1	C: 74435 0	C: 74333 1	C: 74433 0	C: 74763 0	C: 75432 0	C: 75735 1
27,7270	C: 76200 1	C: 75735 1	C: 75140 0	C: 74075 0	C: 73312 0	C: 73732 0	C: 73732 0	C: 00000 1
27,7300	C: 00000 1	C: 00020 0	C: 00066 1	C: 00206 0	C: 00431 1	C: 00712 0	C: 01136 1	C: 02015 1
27,7310	C: 02374 0	C: 03123 1	C: 04051 1	C: 05767 1	C: 07476 0	C: 07476 0	C: 76511 0	C: 76511 0
27,7320	C: 76234 0	C: 75472 1	C: 74604 0	C: 74210 1	C: 74052 0	C: 73735 1	C: 73217 1	C: 73013 1
27,7330	C: 73155 1	C: 74151 1	C: 76703 1	C: 77575 0	C: 77575 0	C: 00006 1	C: 00006 1	C: 00116 1
27,7340	C: 00204 1	C: 00407 1	C: 01113 0	C: 02161 0	C: 03260 0	C: 03717 0	C: 05411 0	C: 10057 1
27,7350	C: 13476 0	C: 20324 0	C: 21677 1	C: 21677 1	07354 1	07355 0	CKSM 66062 0	@
27,7360	@	@	@	@	@	@	@	@
27,7370	@	@	@	@	@	@	@	@

OCTAL LISTING OF PARAGRAPH # 140, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

30,6000	I: 53574 1	I: 45535 0	I: 76776 0	C: 00002 0	C: 01303 0	C: 01301 1	C: 20015 1	I: 53575 0
30,6010	I: 45535 0	C: 00003 1	C: 01303 0	C: 01301 1	I: 75170 0	I: 75535 0	I: 75535 0	I: 75535 0
30,6020	I: 75535 0	I: 75535 0	I: 75535 0	C: 15575 1	C: 00001 0	C: 01304 1	C: 00021 1	C: 01313 1
30,6030	C: 00005 1	C: 01312 0	C: 00023 0	C: 01311 0	C: 07431 0	C: 01040 1	C: 20070 1	C: 01305 0
30,6040	C: 33115 1	I: 47576 0	C: 33123 1	I: 47576 0	C: 33145 1	I: 75575 1	I: 55576 0	C: 00015 0
30,6050	C: 00007 0	I: 75375 1	I: 51622 0	C: 02231 0	C: 27273 1	C: 01052 1	C: 00003 1	C: 36231 1
30,6060	I: 47576 0	C: 36311 1	I: 51576 1	C: 20052 1	I: 45176 0	C: 01211 1	C: 33267 1	I: 77576 0
30,6070	04000 0	I: 71575 0	I: 55445 1	C: 01301 1	C: 00002 0	C: 20101 0	I: 76776 0	C: 20104 0
30,6100	I: 43576 1	C: 00023 0	C: 10310 1	I: 72776 1	C: 00123 1	I: 66774 0	I: 76516 1	I: 62776 0
30,6110	C: 01267 0	C: 01147 1	C: 20404 0	C: 00014 1	C: 07431 0	C: 33263 0	I: 71773 1	I: 65132 1
30,6120	I: 73742 1	I: 66756 0	C: 20132 0	C: 01263 1	C: 20246 0	C: 20141 1	C: 20246 0	C: 20250 1
30,6130	C: 07110 0	I: 45175 0	I: 53776 1	C: 20250 1	C: 01263 1	C: 33263 0	I: 76776 0	C: 07110 0
30,6140	I: 76776 0	C: 07144 1	I: 43175 0	I: 73636 0	C: 01301 1	C: 20176 0	C: 20222 1	I: 75575 1
30,6150	I: 55576 0	C: 00015 0	C: 00007 0	I: 75375 1	I: 52622 0	C: 02231 0	C: 27277 0	C: 01052 1
30,6160	C: 00002 0	C: 36231 1	I: 75375 1	I: 52622 0	C: 02461 0	C: 27277 0	C: 01052 1	C: 00002 0
30,6170	C: 36461 1	I: 51576 1	C: 20154 0	I: 44576 0	C: 01303 0	I: 75176 0	C: 01101 0	C: 33215 1
30,6200	I: 75176 0	C: 01107 0	C: 33223 1	I: 71575 0	I: 55445 1	C: 01301 1	C: 00002 0	C: 20150 1
30,6210	I: 70775 0	I: 75535 0	C: 01267 0	C: 20242 1	C: 00001 0	C: 01301 1	C: 33267 1	I: 76776 0
30,6220	C: 20070 1	I: 75775 0	I: 52622 0	C: 01101 0	C: 13524 0	C: 01052 1	C: 00002 0	C: 33231 1
30,6230	I: 70775 0	I: 75535 0	C: 01267 0	C: 20244 1	C: 00002 0	C: 01301 1	C: 33267 1	I: 76776 0
30,6240	C: 20070 1	C: 00004 0	C: 27440 1	C: 00000 1	C: 00620 0	C: 00000 1	C: 14452 1	C: 12317 1
30,6250	C: 00451 1	C: 30000 1	02676 1	40572 0	50115 1	40573 1	50116 1	20016 1
30,6260	35501 0	50066 1	50117 0	05237 1	40067 1	40000 0	50123 1	04703 1
30,6270	36302 0	50102 1	60067 0	50001 0	35501 0	20001 1	50000 1	10102 0
30,6300	06271 0	04703 1	C: 00045 0	10115 0	06311 1	06311 1	06307 0	44522 1
30,6310	06312 1	45501 1	30034 0	30115 1	25777 1	44522 1	30034 0	60003 1
30,6320	30116 1	30034 0	30115 1	05237 1	35501 0	30116 1	60000 1	50034 0
30,6330	35501 0	60115 1	60115 1	10000 0	64516 1	06337 0	40000 0	50115 1
30,6340	05237 1	20000 0	34477 1	60115 1	06337 0	20017 0	40044 0	40000 0
30,6350	20067 1	50040 0	40045 1	40000 0	20067 1	50042 1	40046 1	40000 0
30,6360	20067 1	50044 1	20016 1	35501 0	20067 1	50041 1	20067 1	50043 0
30,6370	20067 1	50045 0	50066 1	45501 1	05240 1	20067 1	40046 1	40000 0

OCTAL LISTING OF PARAGRAPH # 141, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

30,6400	05654 0	C: 31433 1	04703 1	05654 0	C: 07154 0	05237 1	36414 0	60115 1
30,6410	50115 1	34502 1	05416 1	04024 0	C: 07020 1	36435 0	50077 1	35503 1
30,6420	50100 0	60000 1	60070 0	20000 0	40000 0	40000 0	05654 0	C: 30361 0
30,6430	10077 0	50077 1	10100 1	06420 1	06373 0	C: 00702 1	06563 1	04000 0
30,6440	I: 47574 1	I: 57726 0	I: 77576 0	C: 00040 0	C: 21043 0	05554 0	C: 00006 1	C: 00000 1
30,6450	C: 00000 1	C: 01001 1	C: 14636 1	C: 00325 0	C: 07310 1	C: 00541 1	C: 16735 1	35501 0
30,6460	50117 0	36502 0	30116 1	50100 0	36501 0	30115 1	30077 1	20067 1
30,6470	40037 1	05422 0	30117 0	30116 1	30115 1	05171 0	C: 00077 1	06563 1
30,6500	05237 1	C: 00542 1	C: 34414 1	06563 1	04000 0	I: 51176 0	C: 00045 0	I: 51172 1
30,6510	I: 70746 0	I: 47653 1	I: 61746 0	I: 56713 1	C: 00041 1	C: 77777 0	C: 20547 0	C: 20553 0
30,6520	C: 00045 0	C: 20557 1	C: 00002 0	I: 73774 1	I: 41423 1	I: 77576 0	C: 00041 1	C: 20534 1
30,6530	C: 77777 0	06563 1	05237 1	I: 47174 0	I: 43742 1	I: 76576 1	C: 77777 0	C: 20543 1
30,6540	C: 21174 0	C: 20532 1	I: 47575 0	I: 66771 0	C: 21174 0	C: 20532 1	I: 47575 0	I: 45772 1
30,6550	C: 00002 0	C: 20506 0	I: 45175 0	I: 76576 1	C: 21057 0	C: 20532 1	I: 53775 1	I: 76576 1
30,6560	C: 21055 1	C: 00045 0	C: 20532 1	30120 1	20067 1	30034 0	50120 1	30121 0
30,6570	20067 1	30035 1	50121 0	40061 1	60063 1	20067 1	30036 1	50063 1
30,6600	74720 1	30063 1	72261 1	40000 0	50061 0	00001 0	10115 0	06621 1
30,6610	06621 1	06612 1	34500 0	50115 1	50116 1	50117 0	35501 0	50066 1
30,6620	05237 1	34476 0	06613 0	35503 1	50071 1	60000 1	60070 0	50072 1
30,6630	20072 0	40001 1	40000 0	60000 1	50034 0	35501 0	20072 0	60000 1
30,6640	20072 0	60000 1	10000 0	64516 1	06646 0	40000 0	20071 0	50115 1
30,6650	06656 1	20000 0	34477 1	20071 0	60115 1	06646 0	10071 0	06624 1
30,6660	50066 1	45503 0	05240 1	35503 1	50071 1	60000 1	60070 0	50072 1
30,6670	20071 0	40115 0	25777 1	44520 0	50073 0	10003 0	35501 0	06702 1
30,6700	06701 1	44522 1	60003 1	20072 0	50001 0	35501 0	60073 0	20072 0
30,6710	50000 1	10071 0	06664 0	45501 1	50065 1	04024 0	03362 0	04703 1
30,6720	41520 0	25777 1	44503 1	50116 1	34504 1	60700 0	76771 1	51450 1
30,6730	06733 0	34476 0	51450 1	41450 0	60700 0	60116 1	64504 1	10000 0
30,6740	06751 1	C: 74000 1	44503 1	61450 1	51450 1	06756 0	20000 0	44477 0
30,6750	06744 0	66741 0	10000 0	34503 0	06743 1	06756 0	40116 0	61450 1
30,6760	50115 1	06765 0	20000 0	34477 1	60115 1	25777 1	44501 0	51520 1
30,6770	04703 1	C: 74000 1	I: 43575 1	I: 64776 0	C: 00011 1	C: 21010 0	C: 01111 1	C: 21136 0

OCTAL LISTING OF PARAGRAPH # 142, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

30,7000	C: 33357 0	I: 47575 0	I: 70776 0	C: 01465 1	C: 33145 1	I: 76776 0	C: 16152 0	I: 66775 1
30,7010	I: 43611 0	C: 01620 1	C: 21055 1	C: 21016 0	C: 00010 0	I: 64775 0	I: 62772 1	C: 01111 1
30,7020	C: 21140 1	C: 01620 1	C: 21002 0	I: 45176 0	C: 21061 0	C: 33363 1	I: 76776 0	C: 16137 0
30,7030	I: 47573 0	I: 66723 1	I: 63653 1	I: 64776 0	C: 21062 0	C: 00016 0	C: 21156 0	C: 33111 0
30,7040	I: 76576 1	C: 16175 0	C: 37777 1	C: 37777 1	C: 12525 0	C: 12525 0	C: 02525 1	C: 12525 0
30,7050	C: 03146 1	C: 14632 0	C: 06314 1	C: 31463 1	C: 10000 0	C: 00000 1	C: 00000 1	C: 00000 1
30,7060	C: 00000 1	C: 00001 0	C: 00000 1	C: 07777 1	C: 00000 1	C: 00236 0	C: 36763 0	C: 00012 1
30,7070	C: 05512 1	C: 02000 0	C: 00000 1	C: 76407 0	C: 76670 1	C: 05260 0	C: 05572 1	C: 12343 0
30,7100	C: 21616 0	C: 01073 1	C: 26234 0	C: 00172 0	C: 03571 1	C: 13132 0	C: 33062 0	C: 00160 0
30,7110	C: 05104 1	C: 11322 1	C: 32265 1	C: 75047 0	C: 72454 1	C: 05125 1	C: 33500 1	C: 00475 1
30,7120	C: 35746 1	C: 06751 1	C: 27515 0	C: 00001 0	C: 05732 1	C: 01003 0	C: 06315 0	C: 71435 0
30,7130	C: 75516 1	C: 32047 0	C: 24367 0	C: 37200 1	C: 05636 1	C: 00046 0	C: 13137 0	C: 00017 1
30,7140	C: 30730 0	C: 00040 0	C: 30447 0	C: 11463 0	C: 06315 0	C: 00023 0	C: 06315 0	C: 00314 1
30,7150	C: 31463 1	C: 00000 1	C: 17565 1	C: 03657 0	C: 00206 0	C: 00121 0	C: 17460 0	C: 01000 0
30,7160	C: 00000 1	C: 04000 0	C: 00000 1	C: 07534 1	C: 05075 0	C: 75267 0	C: 64700 1	C: 05605 1
30,7170	C: 03656 1	C: 00336 1	C: 21610 0	C: 20000 0	C: 00000 1	C: 11207 1	C: 05301 0	C: 77700 0
30,7200	C: 62716 0	C: 06314 1	C: 31463 1	C: 14631 0	C: 23146 0	C: 00433 0	C: 02775 0	C: 00000 1
30,7210	C: 31027 0	C: 04555 0	C: 27667 0	C: 37173 0	C: 26300 0	C: 71045 0	C: 73065 0	C: 00541 1
30,7220	C: 33575 0	C: 02233 1	C: 21637 0	C: 03146 1	C: 14632 0	C: 00034 0	C: 30623 0	C: 17414 0
30,7230	C: 14575 0	C: 02436 1	C: 27024 1	C: 31463 1	C: 06315 0	C: 06314 1	C: 31463 1	C: 01310 1
30,7240	C: 13103 1	C: 00146 1	C: 14632 0	I: 76573 1	I: 41766 0	I: 50753 0	I: 75776 0	C: 20265 1
30,7250	C: 01016 1	C: 01044 0	C: 21212 0	C: 00774 0	C: 21214 0	I: 47575 0	I: 41753 0	C: 01016 1
30,7260	C: 32021 0	I: 45176 0	C: 01473 0	C: 32017 0	I: 47575 0	I: 55166 0	C: 00021 1	I: 57176 0
30,7270	C: 00017 1	I: 41774 0	I: 73166 1	I: 50753 0	C: 00021 1	C: 00001 0	C: 33505 1	I: 47574 1
30,7300	I: 41753 0	I: 75762 0	C: 00001 0	C: 21216 1	C: 33477 0	I: 47575 0	I: 41622 1	C: 01505 0
30,7310	C: 00002 0	C: 33513 0	I: 40576 1	45501 1	51031 1	51032 1	51033 0	35501 0
30,7320	51002 1	51004 1	51006 0	51035 0	02677 0	40573 1	51465 1	40572 0
30,7330	51464 0	40044 0	51034 1	31031 1	30044 1	51001 1	51002 1	40045 1
30,7340	51034 1	31032 1	30045 0	51003 0	51004 1	40046 1	51034 1	31033 0
30,7350	30046 0	51005 0	51006 0	45501 1	51002 1	51004 1	51006 0	44516 0
30,7360	70675 1	64516 1	50675 0	05761 1	11035 1	07313 1	11006 1	07353 0
30,7370	07373 1	07353 0	07353 0	11004 0	07377 0	07406 1	07377 0	11033 1

OCTAL LISTING OF PARAGRAPH # 143, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

30,7400	07404 0	07404 0	07404 0	07345 1	41034 0	07351 1	11002 0	07412 1
30,7410	07421 1	07412 1	11032 0	07417 1	07417 1	07417 1	07337 1	41034 0
30,7420	07343 1	11031 0	07426 0	07426 0	07426 0	07324 0	41034 0	07335 0
30,7430	02276 0	C: 03204 1	02276 0	C: 02305 0	20017 0	32150 1	02046 1	C: 57101 0
30,7440	20016 1	02362 1	C: 00063 1	37516 1	51374 0	37517 0	51042 0	35501 0
30,7450	51350 0	51352 1	37520 1	51027 0	37521 0	50755 0	47522 1	20017 0
30,7460	70645 1	67523 1	50645 0	20016 1	04000 0	I: 76574 0	I: 41612 1	I: 47171 0
30,7470	C: 20721 1	C: 00774 0	C: 01016 1	C: 01115 0	C: 20607 1	C: 33373 0	I: 42775 1	I: 63703 0
30,7500	C: 01016 1	C: 01115 0	C: 00002 0	C: 33111 0	I: 75176 0	C: 01215 0	C: 33115 1	I: 47176 1
30,7510	C: 01145 0	C: 33145 1	I: 76776 0	C: 13450 1	I: 76576 1	C: 17033 1	C: 62701 0	C: 61664 1
30,7520	C: 14400 0	C: 31000 0	C: 01741 1	C: 01341 0	I: 71173 1	I: 57715 0	I: 67515 1	I: 67425 0
30,7530	C: 00766 0	C: 00047 1	C: 00003 1	C: 01041 0	C: 00017 1	C: 01042 0	C: 00052 0	I: 75175 0
30,7540	I: 44376 0	C: 00766 0	C: 00035 1	C: 32766 1	I: 76776 0	C: 21645 0	I: 44576 0	C: 00052 0
30,7550	I: 75776 0	C: 01002 1	C: 21742 0	I: 75775 0	I: 73432 0	C: 01010 1	C: 01030 0	C: 01042 0
30,7560	C: 00001 0	I: 47573 0	I: 45642 0	I: 75620 1	I: 50625 0	C: 00005 1	C: 00774 0	C: 01030 0
30,7570	C: 00001 0	C: 00766 0	C: 00052 0	C: 33300 1	I: 76776 0	C: 21645 0	I: 47573 0	I: 75632 1
30,7600	I: 50626 0	I: 50776 1	C: 01030 0	C: 77777 0	C: 77777 0	C: 00005 1	C: 00774 0	C: 33306 1
30,7610	I: 77576 0	20067 1	40051 1	51313 1	40662 1	64516 1	02312 0	C: 00005 1
30,7620	20017 0	37641 0	50115 1	20115 0	41277 0	40000 0	20115 0	50765 0
30,7630	10115 0	07622 0	44515 0	70675 1	64515 1	50675 0	20016 1	41313 0
30,7640	05723 1	C: 00013 0	I: 73576 1	C: 01042 0	I: 47575 0	I: 73176 0	C: 33016 0	I: 45175 0
30,7650	I: 63776 1	C: 00037 0	C: 00002 0	C: 33024 1	I: 63776 1	C: 00035 1	C: 00003 1	C: 33026 0
30,7660	I: 45575 1	I: 61576 1	C: 00034 0	C: 01041 0	I: 42776 1	C: 01016 1	C: 01044 0	C: 32032 1
30,7670	I: 47574 1	I: 51122 1	I: 63726 1	C: 21746 1	C: 00005 1	C: 21744 0	I: 62775 0	I: 63376 0
30,7700	C: 21754 1	C: 01026 1	C: 00001 0	C: 32030 0	I: 47574 1	I: 64766 1	I: 50776 1	C: 77777 0
30,7710	C: 01016 1	C: 01016 1	I: 64775 0	I: 75642 0	C: 00030 1	C: 00032 0	C: 01044 0	I: 45175 0
30,7720	I: 76776 0	C: 21750 0	C: 21732 1	I: 75176 0	C: 01016 1	I: 45175 0	I: 63576 0	C: 21752 1
30,7730	C: 00007 0	I: 47574 1	I: 62714 1	I: 75776 0	C: 01026 1	C: 00013 0	C: 33010 0	I: 44576 0
30,7740	C: 00034 0	C: 23126 0	C: 25370 1	C: 04000 0	C: 00000 1	C: 24000 1	C: 00000 1	C: 00022 1
30,7750	C: 21756 0	C: 00164 1	C: 34414 1	C: 00173 1	C: 00416 1	07755 1	07756 1	CKSM 66010 0
30,7760	@	@	@	@	@	@	@	@
30,7770	@	@	@	@	@	@	@	@

OCTAL LISTING OF PARAGRAPH # 144, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

31,6000	I: 77576 0	11723 1	06006 1	06006 1	35501 0	06012 1	36320 0	70647 0
31,6010	10000 0	45503 0	20067 1	50046 0	04000 0	I: 44175 1	I: 76576 1	C: 33607 0
31,6020	C: 20265 1	C: 32017 0	I: 67174 1	I: 64722 1	I: 63726 1	C: 00774 0	C: 22307 0	C: 01024 0
31,6030	C: 00002 0	C: 06304 0	I: 47575 0	I: 56712 0	C: 00002 0	C: 01024 0	C: 32013 1	I: 47575 0
31,6040	I: 73776 0	C: 22465 0	I: 64774 1	I: 53122 0	I: 57706 1	C: 00013 0	C: 22311 1	C: 00013 0
31,6050	C: 00024 1	C: 22313 0	C: 32015 1	I: 41773 1	I: 44733 0	I: 64722 1	I: 76576 1	C: 00766 0
31,6060	C: 00774 0	C: 00002 0	C: 22307 0	C: 00013 0	C: 22255 0	I: 47575 0	I: 66616 0	C: 15710 0
31,6070	C: 22077 1	I: 66775 1	I: 73776 0	C: 00013 0	C: 22322 1	C: 22465 0	I: 64776 0	C: 00017 1
31,6100	C: 00013 0	I: 66776 1	C: 06304 0	C: 00005 1	I: 64775 0	I: 53176 1	C: 00013 0	C: 22307 0
31,6110	I: 42774 0	I: 63722 0	I: 76576 1	C: 00766 0	C: 00774 0	C: 00002 0	C: 77777 0	C: 22143 1
31,6120	C: 32011 0	I: 64774 1	I: 66771 0	I: 70776 0	C: 77777 0	C: 77777 0	C: 77777 0	C: 22155 0
31,6130	C: 00011 1	C: 32011 0	I: 66775 1	I: 76522 0	C: 00007 0	C: 77777 0	C: 22213 1	C: 00015 0
31,6140	C: 33457 1	I: 40576 1	20067 1	20020 1	34513 1	05416 1	30117 0	30116 1
31,6150	50115 1	20067 1	50022 1	04024 0	20067 1	20021 0	34510 1	05416 1
31,6160	35501 0	30117 0	30116 1	50115 1	10115 0	06177 0	06170 1	06202 1
31,6170	10116 0	06177 0	04024 0	35501 0	50115 1	50116 1	04024 0	05654 0
31,6200	C: 07322 0	04024 0	34476 0	51456 1	51457 0	40067 1	40000 0	50123 1
31,6210	04000 0	I: 40576 1	20067 1	20020 1	34513 1	05416 1	20067 1	40010 1
31,6220	30116 1	50115 1	20067 1	20020 1	36316 0	25777 1	40116 0	50117 0
31,6230	06323 0	60117 0	30115 1	20067 1	30022 1	66237 1	60072 1	50000 1
31,6240	06243 1	35501 0	06203 0	20067 1	20023 1	34513 1	25777 1	40115 0
31,6250	50115 1	30003 1	50116 1	04024 0	36303 1	60115 1	50000 1	06275 1
31,6260	66304 0	50000 1	06277 0	66305 1	50000 1	06301 0	44515 0	20067 1
31,6270	50020 0	60000 1	20067 1	50021 1	04024 0	34516 1	06267 1	35501 0
31,6300	06267 1	44516 0	06267 1	C: 37440 0	C: 77747 0	C: 77771 0	C: 33453 0	C: 02065 0
31,6310	C: 11217 0	C: 27040 0	C: 14441 0	C: 37327 0	C: 76563 0	C: 75347 0	C: 72717 0	C: 65640 0
31,6320	C: 00171 0	C: 04316 1	C: 25750 1	30001 0	50071 1	34502 1	50073 0	50072 1
31,6330	10116 0	06341 1	06341 1	06335 1	06340 0	40072 0	50072 1	40116 0
31,6340	50116 1	10115 0	06355 1	06434 1	06346 0	06434 1	40072 0	50072 1
31,6350	40115 0	50115 1	10116 0	06341 1	00071 1	25777 1	46362 1	60116 1
31,6360	10000 0	06367 0	C: 67237 0	35501 0	50073 0	30116 1	06371 1	40115 0
31,6370	60116 1	50021 1	30115 1	60116 1	50000 1	06401 1	30021 1	30021 1

OCTAL LISTING OF PARAGRAPH # 145, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

31,6400	64522 0	50115 1	30021 1	25777 1	50115 1	50115 1	25777 1	40000 0
31,6410	50116 1	25777 1	46441 1	66440 1	25777 1	40116 0	66437 1	25777 1
31,6420	40116 0	66436 0	60000 1	25777 1	40115 0	60073 0	50001 0	10072 0
31,6430	30001 0	00071 1	40001 1	64522 0	64522 0	00071 1	C: 12133 0	C: 62723 0
31,6440	C: 27656 1	C: 46450 1	I: 73773 0	I: 71405 0	I: 45070 1	I: 76576 1	C: 00017 1	C: 22457 1
31,6450	C: 00024 1	C: 00015 0	C: 00027 1	C: 20265 1	C: 33457 1	I: 40576 1	I: 45175 0	I: 76576 1
31,6460	C: 21043 0	C: 20265 1	C: 33457 1	I: 40576 1	I: 45175 0	I: 76576 1	C: 00013 0	C: 20265 1
31,6470	C: 32017 0	I: 41775 1	I: 71116 1	C: 00766 0	C: 00774 0	C: 00003 1	I: 47575 0	I: 64716 0
31,6500	C: 22307 0	C: 00002 0	I: 47575 0	I: 64776 0	C: 00001 0	I: 73174 1	I: 42722 0	I: 63643 0
31,6510	C: 00766 0	C: 00774 0	C: 00003 1	C: 00003 1	I: 62774 1	I: 66643 0	I: 70653 0	C: 00005 1
31,6520	C: 01024 0	C: 22674 1	I: 47576 0	C: 33726 1	I: 47575 0	I: 65672 1	C: 22674 1	C: 00002 0
31,6530	I: 56776 1	C: 00005 1	C: 00002 0	I: 66775 1	I: 61776 0	C: 22674 1	C: 00011 1	I: 56775 1
31,6540	I: 65616 0	C: 15706 1	C: 00002 0	C: 00013 0	C: 22457 1	I: 42775 1	I: 43776 0	C: 00766 0
31,6550	C: 00774 0	C: 22443 1	I: 62774 1	I: 66672 1	I: 62776 0	C: 00005 1	C: 01024 0	C: 22674 1
31,6560	C: 00002 0	C: 00007 0	I: 47575 0	I: 73726 0	C: 22457 1	C: 22674 1	I: 70774 1	I: 61653 0
31,6570	I: 47176 1	C: 22674 1	C: 00015 0	I: 56774 0	I: 61732 0	I: 56712 0	C: 15706 1	C: 00002 0
31,6600	C: 00005 1	C: 22674 1	C: 00002 0	C: 00007 0	I: 47575 0	I: 73726 0	C: 22457 1	C: 22674 1
31,6610	I: 70774 1	I: 61653 0	I: 47176 1	C: 22674 1	C: 00021 1	I: 56775 1	I: 70776 0	C: 00011 1
31,6620	C: 00002 0	C: 22674 1	I: 66775 1	I: 73722 1	C: 00023 0	C: 00017 1	C: 22665 1	I: 51175 0
31,6630	I: 64776 0	C: 00023 0	C: 00023 0	I: 51175 0	I: 64726 0	C: 00017 1	C: 00017 1	I: 56774 0
31,6640	I: 65722 0	I: 70776 0	C: 00011 1	C: 00002 0	C: 22676 0	C: 77777 0	C: 00025 0	I: 64773 0
31,6650	I: 63653 1	I: 64722 1	I: 56771 0	C: 00013 0	C: 22307 0	C: 00002 0	C: 00013 0	C: 00027 1
31,6660	C: 00010 0	C: 20265 1	C: 33457 1	I: 40576 1	I: 45175 0	I: 76576 1	C: 05174 0	C: 20265 1
31,6670	C: 33457 1	I: 40576 1	I: 40576 1	C: 20000 0	C: 00000 1	C: 05252 1	C: 25253 1	C: 56475 1
31,6700	C: 63007 0	I: 45176 0	C: 01576 1	C: 33223 1	I: 43574 0	I: 66756 0	I: 77576 0	C: 00020 0
31,6710	C: 22770 1	C: 01363 0	C: 21142 0	C: 16740 0	03373 0	C: 40100 1	02362 1	C: 00064 0
31,6720	04000 0	I: 45176 0	C: 21144 0	C: 33223 1	I: 47576 0	C: 33576 0	I: 42574 1	I: 66616 0
31,6730	I: 77576 0	C: 00020 0	C: 01620 1	C: 21230 0	C: 22743 1	36677 1	51374 0	04000 0
31,6740	I: 76776 0	C: 16740 0	I: 62776 0	C: 01347 0	C: 01620 1	I: 47571 1	I: 51122 1	I: 62732 0
31,6750	I: 70746 0	I: 73605 0	I: 47176 1	C: 77777 0	C: 21226 1	C: 21230 0	C: 01620 1	C: 16740 0
31,6760	C: 16740 0	C: 21144 0	C: 33576 0	I: 47576 0	C: 33223 1	I: 76776 0	C: 16740 0	I: 66774 0
31,6770	I: 43605 0	I: 45176 0	C: 21232 1	C: 01363 0	C: 23000 0	C: 21144 0	C: 33223 1	I: 70775 0

OCTAL LISTING OF PARAGRAPH # 146, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

31,7000	I: 73775 0	C: 01347 0	C: 21172 0	C: 16740 0	36700 0	51374 0	04000 0	I: 45176 0
31,7010	C: 21051 0	C: 33341 1	I: 66774 0	I: 73605 0	I: 45176 0	C: 01363 0	C: 21122 0	C: 23026 1
31,7020	C: 21053 1	C: 33341 1	I: 45176 0	C: 01363 0	C: 33101 1	I: 45176 0	C: 21144 0	C: 33421 0
31,7030	I: 73775 0	I: 41423 1	C: 01347 0	C: 23037 1	C: 01341 0	C: 33421 0	I: 62775 0	I: 70776 0
31,7040	C: 01347 0	C: 01421 1	C: 01620 1	C: 33365 1	I: 51173 0	I: 62712 1	I: 70722 1	I: 64712 1
31,7050	C: 01347 0	C: 01421 1	C: 21220 1	C: 01363 0	C: 01365 0	C: 01365 0	C: 01343 1	C: 33602 0
31,7060	I: 43776 0	C: 01347 0	C: 23067 1	I: 45176 0	C: 01602 1	C: 33101 1	I: 43575 1	I: 42576 0
31,7070	C: 00012 1	C: 23106 1	C: 00012 1	I: 45176 0	C: 21057 0	C: 33325 0	I: 70776 0	C: 01365 0
31,7100	C: 21066 1	C: 33371 1	I: 45176 0	C: 21104 1	C: 33327 1	I: 64774 1	I: 62771 1	I: 62712 1
31,7110	C: 01602 1	C: 21220 1	C: 01365 0	C: 20265 1	C: 01365 0	C: 01341 0	C: 33630 1	I: 47575 0
31,7120	I: 65706 0	C: 21043 0	C: 01365 0	C: 33632 0	I: 66775 1	I: 64712 1	C: 01630 0	C: 21043 0
31,7130	C: 01630 0	C: 01602 1	C: 33331 0	I: 64774 1	I: 70653 0	I: 65722 0	C: 01327 0	C: 01331 1
31,7140	C: 01630 0	C: 21043 0	C: 01632 1	C: 33616 0	I: 47574 1	I: 65722 0	I: 62776 0	C: 01365 0
31,7150	C: 01341 0	C: 01616 1	C: 32027 0	I: 66775 1	I: 73776 0	C: 01616 1	C: 21106 0	C: 16532 1
31,7160	I: 51176 0	C: 01616 1	C: 33604 0	I: 66775 1	I: 73776 0	C: 21174 0	C: 01616 1	C: 16405 1
31,7170	C: 33440 1	I: 45176 0	C: 21174 0	C: 33612 1	I: 47574 1	I: 66756 0	I: 65776 1	C: 01365 0
31,7200	C: 23207 0	C: 01440 0	C: 33440 1	I: 45176 0	C: 01365 0	C: 33612 1	I: 56773 1	I: 62726 0
31,7210	I: 63643 0	I: 66712 0	C: 01612 0	C: 00002 0	C: 01632 1	C: 21174 0	C: 00002 0	C: 01630 0
31,7220	C: 01331 1	C: 33434 1	I: 56775 1	I: 62732 0	C: 01434 0	C: 00006 1	C: 01327 0	C: 21160 0
31,7230	C: 33436 0	I: 47572 1	I: 70722 1	I: 64722 1	I: 62712 1	I: 65756 0	C: 21162 1	C: 21164 1
31,7240	C: 01440 0	C: 01440 0	C: 01434 0	C: 01604 1	C: 00027 1	C: 23450 1	C: 33610 0	I: 51175 0
31,7250	I: 56726 1	C: 01610 1	C: 00003 1	C: 21174 0	C: 33606 1	I: 66773 1	I: 64722 1	I: 64716 0
31,7260	I: 70653 0	C: 01604 1	C: 21174 0	C: 01604 1	C: 01606 0	C: 01606 0	C: 00003 1	C: 21072 1
31,7270	I: 64774 1	I: 64712 1	I: 63116 1	C: 01604 1	C: 01606 0	C: 01610 1	C: 77777 0	C: 00002 0
31,7300	I: 64775 0	I: 70742 1	C: 01616 1	C: 21076 0	C: 21074 1	I: 64776 0	C: 00027 1	C: 21234 1
31,7310	I: 64775 0	I: 70776 0	C: 01610 1	C: 21236 0	C: 32027 0	I: 51173 0	I: 64712 1	I: 62771 1
31,7320	I: 64712 1	C: 01365 0	C: 01327 0	C: 01604 1	C: 01602 1	C: 20437 0	C: 21110 1	C: 00027 1
31,7330	I: 64775 0	I: 64712 1	C: 21166 0	C: 01347 0	C: 01620 1	C: 01602 1	I: 66774 0	I: 64742 1
31,7340	I: 70742 1	C: 21102 1	C: 01610 1	C: 21100 0	I: 47575 0	I: 65672 1	C: 01111 1	C: 00005 1
31,7350	C: 33225 1	I: 47572 1	I: 65132 1	I: 73615 1	I: 41556 1	I: 41532 0	C: 21124 0	C: 16203 1
31,7360	C: 00013 0	C: 23370 1	C: 01225 0	C: 16377 0	C: 01365 0	C: 01371 0	C: 33600 1	I: 66774 0
31,7370	I: 56712 0	I: 61672 0	C: 01325 1	C: 01225 0	C: 00003 1	C: 01600 0	C: 01225 0	C: 00003 1

OCTAL LISTING OF PARAGRAPH # 147, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

31,7400	C: 33600 1	I: 77576 0	02276 0	C: 02003 0	37514 0	51374 0	35501 0	50122 0
31,7410	04000 0	I: 47574 1	I: 65616 0	I: 70776 0	C: 21120 1	C: 23421 1	C: 01600 0	C: 33600 1
31,7420	I: 70774 1	I: 66756 0	I: 41472 0	C: 01600 0	C: 01616 1	C: 21174 0	C: 23433 1	C: 01600 0
31,7430	C: 00002 0	C: 33600 1	I: 70776 0	C: 01365 0	C: 01600 0	C: 33365 1	I: 45176 0	C: 01225 0
31,7440	C: 33325 0	I: 43575 1	I: 42572 1	C: 00013 0	C: 23106 1	C: 00013 0	C: 23106 1	I: 47575 0
31,7450	I: 64722 1	C: 01616 1	C: 21045 0	I: 64776 0	C: 01341 0	C: 21045 0	I: 70773 0	I: 64722 1
31,7460	I: 62712 1	I: 65706 0	C: 01436 1	C: 21047 1	C: 01440 0	C: 21164 1	C: 01434 0	C: 01616 1
31,7470	I: 70776 0	C: 01616 1	C: 33616 0	I: 47573 0	I: 62726 0	I: 51132 0	I: 62776 0	C: 01632 1
31,7500	C: 21043 0	C: 01630 0	C: 01331 1	C: 33327 1	I: 51176 0	C: 01616 1	C: 33604 0	I: 45176 0
31,7510	C: 21057 0	C: 33610 0	I: 76776 0	C: 23250 1	C: 56513 0	03462 1	C: 00140 1	07006 0
31,7520	04000 0	I: 51776 0	C: 01101 0	C: 01052 1	C: 33101 1	I: 51775 0	I: 44776 1	C: 01107 0
31,7530	C: 01052 1	C: 00002 0	C: 33107 1	I: 77576 0	02124 1	07535 0	07536 0	CKSM 71506 1
31,7540	@	@	@	@	@	@	@	@
31,7550	@	@	@	@	@	@	@	@
31,7560	@	@	@	@	@	@	@	@
31,7570	@	@	@	@	@	@	@	@
31,7600	@	@	@	@	@	@	@	@
31,7610	@	@	@	@	@	@	@	@
31,7620	@	@	@	@	@	@	@	@
31,7630	@	@	@	@	@	@	@	@
31,7640	@	@	@	@	@	@	@	@
31,7650	@	@	@	@	@	@	@	@
31,7660	@	@	@	@	@	@	@	@
31,7670	@	@	@	@	@	@	@	@
31,7700	@	@	@	@	@	@	@	@
31,7710	@	@	@	@	@	@	@	@
31,7720	@	@	@	@	@	@	@	@
31,7730	@	@	@	@	@	@	@	@
31,7740	@	@	@	@	@	@	@	@
31,7750	@	@	@	@	@	@	@	@
31,7760	@	@	@	@	@	@	@	@
31,7770	@	@	@	@	@	@	@	@

OCTAL LISTING OF PARAGRAPH # 150, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

32,6000	20017 0	02677 0	40572 0	51462 0	40573 1	51463 1	40000 0	50666 1
32,6010	33533 1	02312 0	C: 00004 0	10000 0	06022 1	06022 1	20017 0	37567 1
32,6020	02173 0	C: 64025 1	03416 1	C: 00002 0	03151 1	33557 0	02312 0	C: 00004 0
32,6030	35501 0	50665 1	34516 1	02312 0	C: 00003 1	35501 0	60667 0	61463 1
32,6040	64520 1	64520 1	30667 0	33565 1	50036 1	33560 1	02312 0	C: 00004 0
32,6050	43565 0	61563 0	02173 0	C: 64066 0	32146 0	02046 1	C: 50000 1	35501 0
32,6060	50035 1	02256 1	32170 0	02052 1	C: 11147 0	06030 1	32143 0	02046 1
32,6070	C: 64074 0	03416 1	C: 00040 0	02256 1	02276 0	C: 03203 0	04000 0	I: 76575 1
32,6100	I: 66776 1	C: 20253 1	C: 01565 0	C: 33571 1	I: 47574 1	I: 43605 0	I: 45176 0	C: 24113 1
32,6110	C: 07227 1	C: 33571 1	I: 47573 0	I: 66756 0	I: 41423 1	I: 42576 0	C: 01567 1	C: 24124 0
32,6120	C: 01567 1	C: 00033 1	C: 33571 1	I: 45174 1	I: 76516 1	I: 76516 1	C: 01571 0	C: 20404 0
32,6130	C: 00017 1	C: 24246 1	C: 00005 1	C: 32025 1	I: 57176 0	C: 00025 0	I: 45176 0	C: 07227 1
32,6140	I: 55175 1	I: 41176 1	C: 00025 0	C: 32027 0	I: 47576 0	C: 33411 0	I: 45176 0	C: 01415 0
32,6150	C: 32027 0	I: 47176 1	C: 01411 1	C: 32033 0	I: 76572 0	I: 66712 0	I: 66756 0	I: 41423 1
32,6160	I: 76576 1	C: 20253 1	C: 01563 0	C: 01701 0	C: 01703 1	C: 24171 0	C: 07227 1	C: 20265 1
32,6170	I: 47576 0	C: 32025 1	I: 47575 0	I: 57176 0	C: 32023 1	I: 47575 0	I: 63766 0	C: 00002 0
32,6200	C: 00027 1	C: 33417 0	I: 55175 1	I: 47176 1	C: 00025 0	C: 33421 0	I: 47574 1	I: 47166 0
32,6210	I: 44776 1	C: 00027 1	C: 00002 0	C: 33425 1	I: 45176 0	C: 00023 0	C: 33427 0	I: 76776 0
32,6220	C: 12167 1	I: 76776 0	C: 12072 1	I: 47576 0	C: 32701 0	I: 77576 0	34511 0	70646 1
32,6230	10000 0	06074 1	20017 0	41572 1	40000 0	02173 0	C: 64250 1	40036 0
32,6240	50665 1	35503 1	02312 0	C: 00003 1	02124 1	33534 0	51574 0	01573 1
32,6250	33553 1	02312 0	C: 00003 1	32155 1	02046 1	C: 64257 0	06325 0	05654 0
32,6260	C: 30163 0	05654 0	C: 30331 0	03066 1	02362 1	C: 00014 1	04000 0	I: 75575 1
32,6270	I: 76776 0	C: 00007 0	C: 12001 0	I: 75176 0	C: 01315 1	C: 33345 0	I: 77576 0	02124 1
32,6300	32155 1	02046 1	C: 50046 0	34516 1	70646 1	10000 0	06325 0	40647 0
32,6310	74516 0	10000 0	06321 1	40011 0	74502 0	10000 0	06325 0	05720 1
32,6320	C: 64710 0	36335 1	70647 0	10000 0	06331 0	36677 1	02173 0	C: 64300 0
32,6330	02256 1	44516 0	02312 0	C: 00003 1	02256 1	C: 00016 0	40036 0	50666 1
32,6340	03430 0	C: 20000 0	03373 0	C: 40221 1	34516 1	70646 1	10000 0	06462 1
32,6350	03416 1	C: 01000 0	02276 0	C: 01404 0	20017 0	36505 1	02173 0	C: 64374 0
32,6360	03302 0	06366 1	03362 0	03416 1	C: 00200 0	02124 1	20017 0	32170 0
32,6370	02052 1	C: 11147 0	20016 1	06363 1	32160 1	02052 1	C: 64400 1	02256 1

OCTAL LISTING OF PARAGRAPH # 151, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

32,6400	34516 1	51446 0	03430 0	C: 20000 0	34501 1	70645 1	10000 0	06427 0
32,6410	20017 0	36504 0	02173 0	C: 64663 0	20016 1	03504 0	C: 00010 0	36426 1
32,6420	51470 0	02276 0	C: 02504 1	02362 1	C: 00031 0	03151 1	C: 52454 0	03504 0
32,6430	C: 00002 0	02276 0	C: 02004 1	20017 0	36510 0	02173 0	C: 64527 0	20016 1
32,6440	05654 0	C: 30223 1	03516 0	36461 1	51470 0	35503 1	51446 0	37655 0
32,6450	51442 1	03416 1	C: 00010 0	02362 1	C: 00073 0	05654 0	C: 30331 0	03066 1
32,6460	03151 1	C: 52530 0	03504 0	C: 00001 0	33537 0	02312 0	C: 00004 0	20017 0
32,6470	36700 0	02173 0	C: 64527 0	20016 1	02362 1	C: 00074 1	06360 1	03462 1
32,6500	C: 20000 0	03373 0	C: 42000 1	02124 1	C: 01476 0	C: 00252 1	C: 22244 0	C: 02032 1
32,6510	C: 00574 1	03373 0	C: 40200 1	33550 1	02312 0	C: 00004 0	40036 0	50666 1
32,6520	33551 0	02312 0	C: 00004 0	37151 0	02173 0	C: 64527 0	02256 1	33542 1
32,6530	02312 0	C: 00004 0	40036 0	50666 1	03405 0	C: 40001 1	33543 0	02312 0
32,6540	C: 00004 0	36676 0	02173 0	C: 64545 1	02256 1	03373 0	C: 40002 1	33544 1
32,6550	02312 0	C: 00004 0	36676 0	02173 0	C: 64562 1	02256 1	44516 0	02312 0
32,6560	C: 00004 0	02256 1	44502 0	51447 1	70011 0	64502 1	50011 1	02677 0
32,6570	40572 0	51462 0	40573 1	51463 1	03416 1	C: 00030 1	33550 1	70647 0
32,6600	10000 0	06603 1	06636 1	10651 1	64341 0	10000 0	06642 1	06642 1
32,6610	06611 1	44516 0	02312 0	C: 00002 0	32170 0	02052 1	C: 11147 0	06642 1
32,6620	36707 1	70647 0	10000 0	06625 0	06636 1	33547 1	02312 0	C: 00004 0
32,6630	36701 1	02173 0	C: 64710 0	03430 0	C: 00010 0	02256 1	36463 0	70647 0
32,6640	10000 0	06660 1	33546 0	02312 0	C: 00004 0	40646 1	76634 1	10000 0
32,6650	02256 1	34502 1	02046 1	C: 66322 1	36703 0	02173 0	C: 64645 1	02256 1
32,6660	03430 0	C: 00010 0	06556 1	03405 0	C: 40020 1	03416 1	C: 00400 0	36706 0
32,6670	02173 0	C: 64527 0	33535 1	02312 0	C: 00004 0	02256 1	C: 00031 0	C: 00144 0
32,6700	C: 00372 1	C: 00454 1	C: 00536 1	C: 00764 1	C: 01130 1	C: 02734 0	C: 21366 1	C: 00140 1
32,6710	44502 0	70011 0	50011 1	02677 0	40572 0	51462 0	40573 1	51463 1
32,6720	03430 0	C: 00020 0	40044 0	51222 1	40045 1	51223 0	40046 1	51224 1
32,6730	03405 0	C: 40020 1	40647 0	76463 1	10000 0	06774 0	34516 1	51446 0
32,6740	03416 1	C: 01400 1	34501 1	70645 1	10000 0	06764 1	36506 1	02173 0
32,6750	C: 64527 0	36426 1	51470 0	32160 1	02052 1	C: 64423 0	33535 1	02312 0
32,6760	C: 00004 0	03504 0	C: 00010 0	06331 0	36461 1	51470 0	34473 0	02312 0
32,6770	C: 00003 1	03504 0	C: 00004 0	02256 1	33554 0	02312 0	C: 00004 0	41463 0

OCTAL LISTING OF PARAGRAPH # 152, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

32,7000	50665 1	50666 1	40647 0	76416 0	10000 0	07070 1	36507 0	02173 0
32,7010	C: 50114 0	37150 1	02173 0	C: 65110 1	35502 0	02312 0	C: 00003 1	34473 0
32,7020	02312 0	C: 00004 0	03504 0	C: 00020 0	02256 1	40647 0	77023 0	10000 0
32,7030	07050 0	37146 0	02173 0	C: 31550 0	36704 1	02173 0	C: 64511 0	35362 0
32,7040	02312 0	C: 00003 1	33232 1	02312 0	C: 00004 0	03504 0	C: 00040 0	02256 1
32,7050	40647 0	77046 0	10000 0	07070 1	33536 1	02312 0	C: 00004 0	36704 1
32,7060	02173 0	C: 64511 0	32144 1	02052 1	C: 65143 1	03504 0	C: 00100 0	02256 1
32,7070	32144 1	02052 1	C: 65140 1	33532 0	02312 0	C: 00003 1	44516 0	02312 0
32,7100	C: 00004 0	37150 1	02173 0	C: 65110 1	35502 0	02312 0	C: 00003 1	02256 1
32,7110	36702 1	02173 0	C: 65124 0	03405 0	C: 40200 1	34477 1	02312 0	C: 00003 1
32,7120	02256 1	03405 0	C: 40200 1	06331 0	03405 0	C: 40002 1	34475 0	02312 0
32,7130	C: 00003 1	36676 0	02173 0	C: 65135 0	02256 1	03373 0	C: 40001 1	06331 0
32,7140	02362 1	C: 00023 0	02124 1	02362 1	C: 00044 1	02124 1	C: 00113 1	C: 00144 0
32,7150	C: 01274 1	C: 02176 0	37254 0	05750 0	35503 1	02312 0	C: 00005 1	41465 0
32,7160	50667 0	35503 1	51035 0	34514 0	70646 1	10000 0	07212 1	40646 1
32,7170	77256 0	10000 0	03062 0	07216 0	37257 0	70647 0	10000 0	07222 1
32,7200	37567 1	02173 0	C: 65152 1	32152 0	02046 1	C: 65262 1	34473 0	02312 0
32,7210	C: 00005 1	02256 1	37567 1	02173 0	C: 56004 0	07203 1	37567 1	02173 0
32,7220	C: 66657 0	07203 1	34516 1	51030 0	37260 1	07201 0	37257 0	70647 0
32,7230	10000 0	07234 0	37255 1	07153 1	47260 0	60667 0	60036 1	30572 1
32,7240	10572 0	07232 0	07232 0	37260 1	60572 1	64476 0	50000 1	07232 0
32,7250	40572 0	02173 0	C: 65232 1	02256 1	C: 61313 1	C: 61364 1	C: 40000 0	C: 00006 1
32,7260	C: 00372 1	C: 00620 0	05654 0	C: 31017 0	40645 1	74503 1	10000 0	07276 0
32,7270	51001 1	51002 1	51003 0	51004 1	51005 0	51006 0	04000 0	I: 76776 0
32,7300	C: 15712 1	I: 76776 0	C: 21551 0	33533 1	50115 1	20115 0	41416 1	20115 0
32,7310	51263 1	10115 0	07304 1	41446 1	51261 0	41447 0	51262 0	02276 0
32,7320	C: 02705 1	04000 0	I: 43576 1	C: 00036 1	C: 25354 1	I: 45176 0	C: 21144 0	C: 33576 0
32,7330	I: 75575 1	I: 43565 0	C: 00001 0	C: 00003 1	C: 25337 1	C: 00011 1	I: 46176 0	C: 03275 1
32,7340	C: 33145 1	I: 74176 1	C: 03301 0	C: 33115 1	I: 76776 0	C: 13450 1	I: 77576 0	35501 0
32,7350	51030 0	05720 1	C: 61430 1	I: 76776 0	C: 22001 0	I: 43575 1	I: 75026 1	C: 00022 1
32,7360	C: 25454 0	C: 00766 0	C: 00002 0	C: 33101 1	I: 75176 0	C: 00774 0	C: 33107 1	I: 77576 0
32,7370	41456 0	64476 0	10000 0	03462 1	C: 10000 0	07406 1	41720 1	40000 0

OCTAL LISTING OF PARAGRAPH # 154, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

33,6000	C: 00005 1	C: 06565 1	40646 1	74513 0	10000 0	06241 0	04000 0	I: 76776 0
33,6010	C: 12421 0	I: 77576 0	02276 0	C: 00505 1	11446 1	06017 1	06034 0	51360 0
33,6020	51361 1	51362 1	51363 0	51364 1	51365 0	36033 1	51444 1	51445 0
33,6030	11446 1	51446 0	06241 0	C: 00076 0	03452 1	C: 02000 0	04000 0	I: 75775 0
33,6040	I: 46753 1	C: 01002 1	C: 21742 0	C: 01411 1	C: 33403 0	I: 47575 0	I: 42616 0	C: 01353 0
33,6050	C: 26235 1	C: 32033 0	I: 70776 0	C: 00037 0	C: 01445 0	I: 64773 0	I: 63746 1	I: 62746 0
33,6060	I: 64772 1	C: 00033 1	C: 26163 1	C: 00004 0	C: 26072 0	C: 77777 0	C: 26072 0	C: 01030 0
33,6070	C: 26173 0	I: 45176 0	C: 00037 0	C: 33445 1	I: 64776 0	C: 26165 1	C: 01030 0	I: 71173 1
33,6100	I: 57706 1	I: 75606 0	I: 44376 0	C: 01353 0	C: 00050 1	C: 77777 0	C: 01353 0	C: 01403 1
33,6110	C: 00002 0	C: 33345 0	I: 47575 0	I: 75642 0	C: 26167 0	C: 01361 1	I: 47574 1	I: 71132 1
33,6120	I: 43776 0	C: 26171 1	C: 26126 0	I: 75176 0	C: 33361 0	I: 50775 1	I: 76572 0	C: 01345 1
33,6130	C: 01361 1	C: 20265 1	C: 12375 0	I: 44775 1	I: 47175 1	C: 01353 0	C: 00003 1	03302 0
33,6140	06156 0	20067 1	40040 1	50616 0	20067 1	40042 0	50617 1	20067 1
33,6150	40044 0	50620 0	36157 1	03100 0	03250 0	03362 0	06241 0	C: 00640 0
33,6160	C: 06057 0	C: 03250 0	C: 37656 0	C: 02437 0	C: 03204 1	C: 33423 1	C: 02436 1	C: 27024 1
33,6170	C: 00026 0	C: 30133 0	I: 47574 1	I: 56633 1	I: 43575 1	C: 00005 1	C: 00035 1	C: 26134 0
33,6200	30115 1	51460 1	20017 0	40036 0	50666 1	61465 1	10000 0	64500 0
33,6210	06213 1	64516 1	40000 0	61460 1	61560 0	51461 0	10000 0	06222 0
33,6220	06222 0	35501 0	64516 1	02173 0	C: 64710 0	02276 0	C: 00104 1	03430 0
33,6230	C: 00010 0	02276 0	C: 00204 1	06241 0	I: 77576 0	03007 0	C: 01401 0	05654 0
33,6240	C: 65717 0	11030 1	36252 1	66253 0	51027 0	60000 1	50755 0	02276 0
33,6250	C: 00105 0	02124 1	C: 03100 0	C: 14400 0	C: 00007 0	I: 53574 1	I: 45415 0	I: 53576 0
33,6260	C: 00001 0	C: 00052 0	C: 00054 0	C: 26266 1	C: 00003 1	I: 76776 0	C: 13402 0	I: 76575 1
33,6270	I: 42176 1	C: 20271 1	C: 03621 1	C: 32007 1	I: 47575 0	I: 47065 1	C: 00007 0	C: 32003 0
33,6300	I: 42176 1	C: 03611 1	C: 32005 0	I: 47575 0	I: 47165 0	C: 00023 0	C: 32015 1	I: 74174 0
33,6310	I: 51640 1	I: 73176 0	C: 00045 0	C: 01367 1	C: 03021 1	C: 37065 0	I: 51575 1	I: 44576 0
33,6320	C: 26310 1	C: 00052 0	04000 0	I: 75575 1	I: 54572 0	C: 00007 0	C: 26360 0	C: 12013 0
33,6330	I: 76776 0	C: 12110 1	I: 75776 0	C: 01477 1	C: 12241 0	I: 75774 1	I: 50615 0	I: 47176 1
33,6340	C: 01513 1	C: 12237 1	C: 77777 0	C: 00054 0	C: 26347 0	C: 32027 0	I: 47573 0	I: 41753 0
33,6350	I: 41766 0	I: 44772 0	C: 00766 0	C: 01505 0	C: 26403 1	C: 00004 0	C: 12402 1	I: 77576 0
33,6360	40646 1	74513 0	10000 0	02124 1	34512 0	70647 0	10000 0	06377 1
33,6370	40647 0	74513 0	10000 0	02124 1	02362 1	C: 00041 1	02124 1	02362 1

OCTAL LISTING OF PARAGRAPH # 155, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

33,6400	C: 00042 1	02124 1	C: 00516 0	C: 07363 0	05654 0	C: 30223 1	03516 0	05654 0
33,6410	C: 30331 0	03066 1	04000 0	I: 76776 0	C: 26500 0	I: 77576 0	20017 0	34516 1
33,6420	02173 0	C: 66525 0	02124 1	04000 0	I: 76776 0	C: 26500 0	I: 77576 0	02124 1
33,6430	I: 47576 0	C: 32701 0	I: 43575 1	I: 43575 1	C: 00025 0	C: 26447 1	C: 00043 0	C: 26473 0
33,6440	03416 1	C: 00004 0	44516 0	02312 0	C: 00003 1	02124 1	I: 43575 1	I: 77576 0
33,6450	C: 00022 1	C: 26460 1	03416 1	C: 10000 0	02362 1	C: 00022 1	06473 1	I: 43576 1
33,6460	C: 00056 1	C: 26473 0	I: 77576 0	20017 0	34516 1	02173 0	C: 64527 0	35503 1
33,6470	51446 0	06473 1	I: 77576 0	44516 0	02312 0	C: 00002 0	02124 1	I: 45575 1
33,6500	I: 76776 0	C: 01475 0	C: 14001 0	I: 43576 1	C: 00046 0	C: 26431 0	I: 53574 1	I: 43455 1
33,6510	I: 43455 1	C: 00001 0	C: 00045 0	C: 26521 0	C: 00003 1	C: 00043 0	C: 26521 0	C: 00005 1
33,6520	I: 44176 1	C: 33461 1	C: 33453 0	I: 44576 0	C: 01475 0	03440 1	C: 01000 0	40647 0
33,6530	74504 0	10000 0	06552 0	36526 0	70647 0	10000 0	06543 0	36556 1
33,6540	02173 0	C: 66525 0	02256 1	32156 1	02046 1	C: 66560 1	36557 0	02173 0
33,6550	C: 66527 1	02256 1	03452 1	C: 01000 0	02256 1	C: 00000 1	C: 00764 1	C: 00062 0
33,6560	04000 0	I: 66775 1	I: 43633 0	C: 01453 1	C: 01455 1	C: 26572 0	C: 33455 0	I: 76776 0
33,6570	C: 26601 1	I: 45176 0	C: 01455 1	C: 33453 0	I: 77576 0	03452 1	C: 01000 0	04000 0
33,6600	I: 75775 0	I: 44772 0	C: 01323 1	C: 01453 1	C: 00002 0	C: 12375 0	I: 43576 1	C: 00047 1
33,6610	C: 26614 0	I: 77576 0	02124 1	I: 77576 0	20017 0	32146 0	02046 1	C: 66423 1
33,6620	02124 1	02362 1	C: 00021 1	04000 0	I: 43176 0	C: 01676 1	I: 43176 0	C: 01675 1
33,6630	I: 43175 0	I: 41033 1	C: 01674 0	C: 33315 0	I: 75575 1	I: 76776 0	C: 00007 0	C: 12041 1
33,6640	I: 76776 0	C: 12110 1	I: 76776 0	C: 12213 1	I: 75176 0	C: 01367 1	C: 33411 0	I: 75176 0
33,6650	C: 01375 1	C: 33417 0	I: 75176 0	C: 01403 1	C: 33425 1	I: 76776 0	C: 26414 1	45501 1
33,6660	51001 1	51002 1	51003 0	51004 1	51005 0	51006 0	34500 0	70646 1
33,6670	10000 0	03062 0	02256 1	35362 0	02312 0	C: 00005 1	40036 0	50667 0
33,6700	34513 1	02312 0	C: 00005 1	36712 0	02173 0	C: 66666 1	32147 1	02046 1
33,6710	C: 66713 1	02256 1	C: 00310 0	40646 1	74502 0	10000 0	07030 0	04000 0
33,6720	I: 45176 0	C: 27036 1	C: 33030 1	I: 75176 0	C: 01101 0	C: 33656 1	I: 75176 0	C: 01107 0
33,6730	C: 33664 0	I: 77576 0	02276 0	C: 01205 1	03430 0	C: 50000 1	04000 0	I: 75176 0
33,6740	C: 01656 0	C: 33101 1	I: 75176 0	C: 01664 1	C: 33107 1	I: 76776 0	C: 20001 1	I: 75175 0
33,6750	I: 44776 1	C: 01231 0	C: 00002 0	C: 32766 1	I: 76575 1	I: 76776 0	C: 20265 1	C: 21643 0
33,6760	I: 75176 0	C: 01107 0	C: 32774 1	I: 75575 1	I: 67572 0	C: 12462 1	C: 01471 1	C: 12421 0
33,6770	I: 75175 0	I: 44776 1	C: 01101 0	C: 00002 0	C: 32766 1	I: 76776 0	C: 21643 0	I: 76776 0

OCTAL LISTING OF PARAGRAPH # 156, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

33,7000	C: 12421 0	I: 76776 0	C: 26256 1	I: 45176 0	C: 27034 0	C: 33030 1	I: 75176 0	C: 01223 0
33,7010	C: 32774 1	I: 75175 0	I: 44776 1	C: 01215 0	C: 00002 0	C: 32766 1	I: 76776 0	C: 21643 0
33,7020	I: 77576 0	34516 1	51446 0	02362 1	C: 00024 1	02276 0	C: 02405 1	02124 1
33,7030	02276 0	C: 01305 0	02124 1	C: 14400 0	C: 00000 1	C: 31000 0	C: 00000 1	20017 0
33,7040	32162 0	02052 1	C: 11147 0	20016 1	34516 1	50037 0	44516 0	02312 0
33,7050	C: 00004 0	44516 0	02312 0	C: 00002 0	33232 1	02312 0	C: 00003 1	05702 1
33,7060	20017 0	44502 0	70011 0	50011 1	03405 0	C: 40020 1	03430 0	C: 00430 0
33,7070	05654 0	C: 30223 1	03516 0	36254 1	70647 0	10000 0	07101 0	03504 0
33,7100	C: 00100 0	05654 0	C: 30331 0	03066 1	40036 0	50665 1	34505 0	70646 1
33,7110	10000 0	07116 0	34510 1	70646 1	10000 0	07126 0	34507 1	70725 0
33,7120	10000 0	07147 1	34515 1	70725 0	10000 0	07156 1	40646 1	74503 1
33,7130	10000 0	07215 0	34505 0	70646 1	10000 0	07211 1	03452 1	C: 02000 0
33,7140	20017 0	36556 1	02173 0	C: 67260 1	02276 0	C: 01303 0	02124 1	20017 0
33,7150	36712 0	02173 0	C: 67166 1	02276 0	C: 02703 1	02124 1	20017 0	37221 1
33,7160	02173 0	C: 67177 1	20016 1	02276 0	C: 03003 1	02124 1	03405 0	C: 40200 1
33,7170	37221 1	02173 0	C: 67177 1	33551 0	02312 0	C: 00003 1	02256 1	03405 0
33,7200	C: 40002 1	37220 0	02173 0	C: 67205 1	02256 1	32162 0	02052 1	C: 67126 0
33,7210	02256 1	20017 0	32146 0	02046 1	C: 67224 1	03373 0	C: 40001 1	02124 1
33,7220	C: 00031 0	C: 00536 1	C: 00764 1	C: 01274 1	02362 1	C: 00061 0	04000 0	I: 73175 0
33,7230	I: 75633 0	C: 00774 0	C: 27257 1	I: 47575 0	I: 41753 0	C: 00766 0	C: 33417 0	I: 47573 0
33,7240	I: 41753 0	I: 75642 0	I: 47176 1	C: 00774 0	C: 27255 0	C: 33411 0	I: 47575 0	I: 41753 0
33,7250	C: 01417 1	C: 33425 1	I: 76776 0	C: 26414 1	C: 33555 1	C: 01106 1	C: 20000 0	C: 00000 1
33,7260	36556 1	02173 0	C: 67342 0	34501 1	02046 1	C: 67274 1	03405 0	C: 40007 1
33,7270	33534 0	02312 0	C: 00003 1	02256 1	40700 1	40000 0	51314 0	11314 1
33,7300	64516 1	07303 0	64516 1	50115 1	25777 1	47353 1	64504 1	77354 0
33,7310	30115 1	25777 1	44504 0	60115 1	20017 0	50700 0	11314 1	30115 1
33,7320	07324 0	40700 1	50700 0	40115 0	51450 1	20016 1	02276 0	C: 01503 0
33,7330	03440 1	C: 20000 0	05654 0	C: 30216 1	05654 0	C: 30331 0	03066 1	02276 0
33,7340	C: 01603 0	02124 1	03373 0	C: 40014 0	33537 0	02312 0	C: 00003 1	36556 1
33,7350	02173 0	C: 67355 0	02256 1	C: 36000 1	C: 74000 1	32146 0	02046 1	C: 67361 1
33,7360	02256 1	02362 1	C: 00062 0	35501 0	51472 1	51473 0	04000 0	I: 76776 0
33,7370	C: 21244 0	I: 76776 0	C: 12213 1	I: 75176 0	C: 01367 1	C: 33411 0	I: 75176 0	C: 01375 1

OCTAL LISTING OF PARAGRAPH # 157, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

33,7400	C: 33417 0	I: 75176 0	C: 01403 1	C: 33425 1	I: 76776 0	C: 26414 1	C: 00007 0	05654 0
33,7410	C: 30216 1	04000 0	I: 75175 0	I: 76776 0	C: 00766 0	C: 21643 0	I: 77576 0	02276 0
33,7420	C: 00105 0	20017 0	40036 0	67440 0	02173 0	C: 65152 1	40036 0	67441 1
33,7430	02173 0	C: 67442 1	02124 1	05654 0	C: 30331 0	07435 1	02124 1	C: 00000 1
33,7440	C: 00310 0	C: 01476 0	32162 0	02046 1	C: 64336 0	02256 1	07446 0	07447 1
33,7450	CKSM 60133 0	@	@	@	@	@	@	@
33,7460	@	@	@	@	@	@	@	@
33,7470	@	@	@	@	@	@	@	@
33,7500	@	@	@	@	@	@	@	@
33,7510	@	@	@	@	@	@	@	@
33,7520	@	@	@	@	@	@	@	@
33,7530	@	@	@	@	@	@	@	@
33,7540	@	@	@	@	@	@	@	@
33,7550	@	@	@	@	@	@	@	@
33,7560	@	@	@	@	@	@	@	@
33,7570	@	@	@	@	@	@	@	@
33,7600	@	@	@	@	@	@	@	@
33,7610	@	@	@	@	@	@	@	@
33,7620	@	@	@	@	@	@	@	@
33,7630	@	@	@	@	@	@	@	@
33,7640	@	@	@	@	@	@	@	@
33,7650	@	@	@	@	@	@	@	@
33,7660	@	@	@	@	@	@	@	@
33,7670	@	@	@	@	@	@	@	@
33,7700	@	@	@	@	@	@	@	@
33,7710	@	@	@	@	@	@	@	@
33,7720	@	@	@	@	@	@	@	@
33,7730	@	@	@	@	@	@	@	@
33,7740	@	@	@	@	@	@	@	@
33,7750	@	@	@	@	@	@	@	@
33,7760	@	@	@	@	@	@	@	@
33,7770	@	@	@	@	@	@	@	@

OCTAL LISTING OF PARAGRAPH # 160, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

34,6000	05654 0	C: 25331 1	03302 0	03310 0	33533 1	51311 0	35501 0	51312 0
34,6010	51224 1	21224 0	41204 1	21224 0	61212 1	21224 0	51212 1	36235 0
34,6020	61224 1	10000 0	44473 1	61224 1	06010 0	51224 1	04000 0	I: 73576 1
34,6030	C: 01225 0	I: 44175 1	I: 66776 1	C: 02421 1	C: 01101 0	C: 36421 0	I: 77576 0	41224 0
34,6040	66236 0	10000 0	34473 0	61224 1	06025 0	51100 1	51101 0	51312 0
34,6050	34473 0	51224 1	04000 0	I: 73576 1	C: 01225 0	I: 66376 0	C: 02421 1	C: 02405 1
34,6060	I: 47575 0	I: 56740 1	C: 00002 0	C: 02405 1	C: 36421 0	I: 47575 0	I: 63742 0	C: 00003 1
34,6070	C: 01521 0	C: 33521 1	I: 44174 0	I: 63643 0	I: 70776 0	C: 02421 1	C: 00005 1	C: 01525 1
34,6100	C: 33525 0	I: 77576 0	41312 1	40000 0	61224 1	40000 0	66235 0	10000 0
34,6110	34475 0	61224 1	06051 0	61312 0	51224 1	21224 0	41113 1	40000 0
34,6120	51572 0	35501 0	51573 1	04000 0	I: 71576 0	C: 01225 0	I: 45176 0	C: 77777 0
34,6130	I: 47574 1	I: 63706 0	I: 70776 0	C: 00006 1	C: 01573 1	C: 01523 1	C: 33523 0	I: 63775 1
34,6140	I: 61776 0	C: 77777 0	C: 00004 0	C: 01573 1	I: 44174 0	I: 63722 0	I: 70776 0	C: 02223 0
34,6150	C: 00005 1	C: 77777 0	C: 01101 0	C: 33101 1	I: 77576 0	41224 0	66235 0	61312 0
34,6160	64341 0	10000 0	34475 0	61224 1	06114 0	04000 0	I: 64776 0	C: 01521 0
34,6170	C: 01101 0	I: 64775 0	I: 66776 1	C: 01525 1	C: 01523 1	I: 51175 0	I: 56776 1	C: 01521 0
34,6200	C: 00002 0	I: 63774 0	I: 64732 0	I: 61722 1	C: 01312 0	C: 00012 1	C: 01525 1	C: 77777 0
34,6210	C: 77777 0	C: 30234 1	C: 32622 0	I: 77576 0	05654 0	C: 14000 1	37730 1	03100 0
34,6220	03315 0	03136 0	06237 1	34473 0	51312 0	05654 0	C: 25331 1	35501 0
34,6230	51100 1	51101 0	06051 0	C: 02321 0	C: 00000 1	C: 00077 1	C: 00105 0	05654 0
34,6240	C: 25406 1	05706 0	51573 1	05654 0	C: 30453 0	34516 1	50616 0	37731 0
34,6250	03100 0	03315 0	34516 1	05654 0	C: 30406 0	05654 0	C: 30327 1	06237 1
34,6260	20735 1	40000 0	40000 0	51302 1	20735 1	40001 1	40000 0	51303 0
34,6270	40735 1	51304 1	05654 0	C: 30453 0	35503 1	50616 0	37731 0	03100 0
34,6300	03315 0	34516 1	05654 0	C: 30406 0	11305 1	06374 1	41304 0	65503 1
34,6310	20067 1	50050 1	04000 0	I: 73576 1	C: 01305 0	I: 76776 0	C: 04733 1	I: 44775 1
34,6320	I: 76776 0	C: 00041 1	C: 00001 0	C: 04524 0	I: 47576 0	C: 33403 0	I: 45176 0	C: 01303 0
34,6330	C: 33175 1	I: 77576 0	04000 0	I: 76776 0	C: 30613 0	I: 76776 0	C: 30634 0	I: 77576 0
34,6340	05654 0	C: 30331 0	06237 1	10734 0	06347 1	06332 0	06347 1	05654 0
34,6350	C: 30327 1	06237 1	35503 1	60735 0	20067 1	50050 1	04000 0	I: 71576 0
34,6360	C: 00736 0	I: 76776 0	C: 04733 1	I: 44775 1	I: 76776 0	C: 00041 1	C: 00001 0	C: 04524 0
34,6370	I: 47576 0	C: 33411 0	I: 76776 0	C: 30421 0	04000 0	I: 73576 1	C: 01305 0	I: 76776 0

OCTAL LISTING OF PARAGRAPH # 161, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

34,6400	C: 04733 1	I: 75176 0	C: 00041 1	C: 33403 0	I: 77576 0	05654 0	C: 30327 1	06237 1
34,6410	04000 0	I: 71576 0	C: 00736 0	I: 76776 0	C: 04733 1	I: 75176 0	C: 00041 1	C: 33411 0
34,6420	I: 75176 0	C: 01101 0	C: 32007 1	I: 75176 0	C: 01107 0	C: 32015 1	I: 76776 0	C: 04761 0
34,6430	I: 75176 0	C: 01477 1	C: 33403 0	I: 75176 0	C: 01505 0	C: 33411 0	I: 75176 0	C: 01513 1
34,6440	C: 33417 0	I: 77576 0	31573 1	05723 1	05706 0	51573 1	04000 0	I: 76776 0
34,6450	C: 04644 0	I: 77576 0	05654 0	C: 30104 1	05654 0	C: 30331 0	06237 1	31573 1
34,6460	05723 1	05706 0	51573 1	04000 0	I: 52775 0	I: 44776 1	C: 01425 0	C: 01403 1
34,6470	C: 00002 0	C: 33477 0	I: 52775 0	I: 44776 1	C: 01433 1	C: 01403 1	C: 00002 0	C: 33505 1
34,6500	I: 41775 1	I: 44776 1	C: 01477 1	C: 01505 0	C: 00002 0	C: 33513 0	I: 76776 0	C: 04353 0
34,6510	I: 76776 0	C: 30634 0	I: 77576 0	31573 1	05723 1	05706 0	51573 1	04000 0
34,6520	I: 63776 1	C: 01315 1	C: 00003 1	C: 32620 1	I: 45175 0	I: 76575 1	C: 01317 0	C: 20325 1
34,6530	30115 1	50616 0	05654 0	C: 25153 1	04000 0	I: 43175 0	I: 76576 1	C: 00617 1
34,6540	C: 20304 1	C: 33317 1	I: 43175 0	I: 56776 1	C: 00620 0	C: 00003 1	C: 33315 0	I: 77576 0
34,6550	31573 1	05723 1	04000 0	I: 76776 0	C: 31755 1	I: 76776 0	C: 03475 1	I: 75176 0
34,6560	C: 01403 1	C: 33101 1	I: 75176 0	C: 01411 1	C: 33107 1	I: 76776 0	C: 03446 1	I: 77576 0
34,6570	05654 0	C: 24050 1	I: 76576 1	C: 20271 1	I: 45176 0	C: 05174 0	I: 55175 1	I: 47176 1
34,6600	C: 01315 1	I: 57175 0	I: 41166 0	C: 01315 1	C: 31733 1	C: 33177 0	I: 76576 1	C: 20253 1
34,6610	C: 33175 1	I: 40576 1	I: 76576 1	C: 20253 1	C: 32051 1	I: 47573 0	I: 66716 1	I: 75652 1
34,6620	I: 50776 1	C: 01175 0	C: 00013 0	C: 01177 1	C: 01425 0	C: 01521 0	C: 33521 1	I: 45176 0
34,6630	C: 00051 0	C: 33175 1	I: 40576 1	I: 75575 1	I: 55561 0	C: 00007 0	C: 00003 1	C: 00001 0
34,6640	I: 56376 0	C: 03255 0	C: 00022 1	C: 36505 1	I: 63375 0	I: 65376 0	C: 02505 0	C: 00022 1
34,6650	C: 03255 0	C: 37255 1	I: 51576 1	C: 30641 1	I: 75575 1	I: 76401 0	C: 01235 1	C: 20376 1
34,6660	05706 0	51573 1	04000 0	I: 71576 0	C: 01225 0	I: 47574 1	I: 63722 0	I: 76576 1
34,6670	C: 00011 1	C: 31735 1	C: 20404 0	C: 36201 1	I: 77576 0	31230 1	21224 0	51102 0
34,6700	41224 0	61307 1	10000 0	34473 0	61224 1	06711 0	11313 0	06237 1
34,6710	06000 1	51224 1	31573 1	05723 1	I: 75575 1	I: 55576 0	C: 00007 0	C: 00003 1
34,6720	I: 66375 0	I: 64740 0	C: 02017 0	C: 02245 0	C: 31751 0	C: 02245 0	C: 36245 1	I: 51576 1
34,6730	C: 30721 0	I: 40576 1	35503 1	67740 0	20067 1	50050 1	04000 0	I: 52775 0
34,6740	I: 44772 0	C: 01425 0	C: 01403 1	C: 00002 0	C: 04524 0	I: 47576 0	C: 33477 0	I: 52775 0
34,6750	I: 44772 0	C: 01433 1	C: 01403 1	C: 00002 0	C: 04524 0	I: 47576 0	C: 33505 1	I: 41775 1
34,6760	I: 44776 1	C: 01477 1	C: 01505 0	C: 00002 0	C: 33513 0	I: 76776 0	C: 04353 0	I: 76776 0
34,6770	C: 30634 0	I: 77576 0	05654 0	C: 30331 0	06237 1	05654 0	C: 24600 1	I: 47575 0

OCTAL LISTING OF PARAGRAPH # 162, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

34,7000	I: 51622 0	C: 01425 0	C: 00002 0	C: 32001 1	I: 45176 0	C: 00043 0	I: 47176 1	C: 00045 0
34,7010	I: 43175 0	I: 41176 1	C: 05174 0	I: 47575 0	I: 75622 0	C: 31737 0	C: 00002 0	I: 74773 1
34,7020	I: 71766 0	I: 44642 1	I: 52642 0	C: 00001 0	C: 00023 0	C: 31037 1	C: 31737 0	C: 00002 0
34,7030	C: 77777 0	C: 01425 0	C: 01521 0	C: 33521 1	I: 75176 0	C: 32023 1	I: 40576 1	21223 1
34,7040	07041 0	06237 1	07050 0	07055 0	07075 1	07121 1	05654 0	C: 24076 0
34,7050	44516 0	51226 0	45503 0	51227 1	07046 1	04000 0	I: 75175 0	I: 47176 1
34,7060	C: 01425 0	I: 75176 0	C: 01441 1	C: 33425 1	I: 75176 0	C: 77777 0	C: 33441 0	I: 77576 0
34,7070	45501 1	51226 0	44516 0	51227 1	07046 1	04000 0	I: 75176 0	C: 01425 0
34,7100	I: 75176 0	C: 01441 1	I: 75176 0	C: 01433 1	C: 33441 0	I: 75176 0	C: 77777 0	C: 33425 1
34,7110	I: 75176 0	C: 77777 0	C: 33433 0	I: 77576 0	45501 1	51226 0	45503 0	51227 1
34,7120	07046 1	04000 0	I: 41775 1	I: 73176 0	C: 01433 1	C: 01441 1	C: 33425 1	I: 77576 0
34,7130	07046 1	37741 1	50034 0	35501 0	20034 1	51402 0	10034 1	07132 0
34,7140	04000 0	I: 76576 1	C: 20271 1	I: 53575 0	I: 57557 1	C: 31671 0	C: 01232 0	C: 00001 0
34,7150	C: 33403 0	I: 53575 0	I: 57557 1	C: 31711 1	C: 01232 0	C: 00001 0	C: 33411 0	I: 55175 1
34,7160	I: 47176 1	C: 01317 0	C: 32011 0	I: 57176 0	C: 01317 0	C: 32013 1	I: 75176 0	C: 31717 1
34,7170	C: 32015 1	I: 76776 0	C: 04761 0	I: 75176 0	C: 01477 1	C: 33403 0	I: 75176 0	C: 01505 0
34,7200	C: 33411 0	I: 75176 0	C: 01513 1	C: 33417 0	I: 77576 0	05654 0	C: 25513 1	11232 1
34,7210	07241 1	07260 1	07241 1	41246 1	61252 0	51242 1	04000 0	I: 54775 0
34,7220	I: 63631 0	C: 01254 0	C: 01250 1	C: 00017 1	I: 43174 1	I: 64712 1	I: 76576 1	C: 01243 0
34,7230	C: 31743 0	C: 00001 0	C: 20404 0	C: 32622 0	I: 77576 0	03302 0	03310 0	05654 0
34,7240	C: 25256 1	04000 0	I: 66774 0	I: 61722 1	I: 76576 1	C: 01245 0	C: 01243 0	C: 01215 0
34,7250	C: 31745 0	C: 20404 0	C: 32622 0	I: 77576 0	03302 0	03310 0	05654 0	C: 25256 1
34,7260	04000 0	I: 76576 1	C: 20265 1	I: 54775 0	I: 63631 0	C: 01105 1	C: 01244 1	C: 00014 1
34,7270	I: 51176 0	C: 00001 0	I: 64775 0	I: 41176 1	C: 00001 0	C: 00003 1	C: 33132 1	I: 54775 0
34,7300	I: 63631 0	C: 01112 1	C: 01244 1	C: 00014 1	I: 51176 0	C: 00001 0	I: 64775 0	I: 41176 1
34,7310	C: 00001 0	C: 00003 1	C: 33140 1	I: 54775 0	I: 63631 0	C: 01117 1	C: 01244 1	C: 00014 1
34,7320	I: 51176 0	C: 00001 0	I: 64775 0	I: 41176 1	C: 00001 0	C: 00003 1	C: 33146 1	I: 41775 1
34,7330	I: 42776 1	C: 01140 0	C: 01146 0	C: 01132 0	C: 33156 0	I: 45176 0	C: 01110 0	C: 33132 1
34,7340	I: 45176 0	C: 01115 0	C: 33140 1	I: 45176 0	C: 01122 1	C: 33146 1	I: 41774 0	I: 42712 0
34,7350	I: 64771 1	C: 01140 0	C: 01146 0	C: 01132 0	C: 01156 1	C: 31747 1	C: 20404 0	C: 32622 0
34,7360	I: 77576 0	03302 0	03310 0	05654 0	C: 25256 1	04000 0	I: 76575 1	I: 76576 1
34,7370	C: 20271 1	C: 20265 1	I: 54775 0	I: 63631 0	C: 01264 0	C: 01245 0	C: 00015 0	I: 66774 0

OCTAL LISTING OF PARAGRAPH # 163, WITH PARITY BIT IN BINARY AT THE RIGHT OF EACH WORD; "@" DENOTES UNUSED FIXED MEMORY.

ALL VALID WORDS ARE BASIC INSTRUCTIONS EXCEPT THOSE MARKED "I" (INTERPRETIVE OPERATOR WORDS) OR "C" (CONSTANTS).

34,7400	I: 63722 0	I: 62776 0	C: 01262 0	C: 01243 0	C: 00015 0	C: 31743 0	I: 54775 0	I: 63631 0
34,7410	C: 01271 1	C: 01252 0	C: 00015 0	I: 66774 0	I: 63722 0	I: 62776 0	C: 01267 0	C: 01250 1
34,7420	C: 00015 0	C: 31743 0	I: 54775 0	I: 63631 0	C: 01276 0	C: 01257 0	C: 00015 0	C: 33216 1
34,7430	I: 66774 0	I: 63722 0	I: 62603 0	C: 01274 1	C: 01255 1	C: 00015 0	C: 31743 0	C: 01216 0
34,7440	I: 71175 1	I: 63771 0	C: 00001 0	C: 00002 0	C: 20404 0	C: 32622 0	I: 77576 0	03302 0
34,7450	03310 0	05654 0	C: 25205 1	04000 0	I: 45176 0	C: 01303 0	I: 45176 0	C: 01301 1
34,7460	I: 45174 1	I: 41153 0	I: 44776 1	C: 01255 1	C: 00002 0	I: 45176 0	C: 01307 1	I: 45176 0
34,7470	C: 01305 0	I: 45174 1	I: 41153 0	I: 44776 1	C: 01274 1	C: 00002 0	I: 41773 1	I: 71116 1
34,7500	I: 62722 1	I: 76576 1	C: 00007 0	C: 00015 0	C: 00002 0	C: 01216 0	C: 31753 1	C: 20404 0
34,7510	C: 32622 0	I: 77576 0	05654 0	C: 25205 1	06237 1	05706 0	51573 1	04000 0
34,7520	I: 76776 0	C: 30613 0	I: 76776 0	C: 30634 0	I: 77576 0	05654 0	C: 30331 0	06237 1
34,7530	31573 1	05723 1	05706 0	51573 1	04000 0	I: 47575 0	I: 54776 0	C: 01250 1
34,7540	C: 32001 1	I: 47575 0	I: 60776 1	C: 01250 1	C: 33250 0	I: 77174 0	I: 63631 0	I: 64742 1
34,7550	C: 00001 0	C: 00015 0	C: 01101 0	C: 01103 1	C: 33103 0	I: 77576 0	11220 1	07574 0
34,7560	04000 0	I: 71576 0	C: 01225 0	I: 77176 1	C: 01250 1	C: 36201 1	I: 45176 0	C: 01103 1
34,7570	C: 36207 1	I: 77576 0	31573 1	05723 1	05654 0	C: 25456 1	04000 0	I: 76776 0
34,7600	C: 30573 0	I: 77576 0	11232 1	07666 0	07606 0	07606 0	05654 0	C: 25331 1
34,7610	05654 0	C: 25343 1	34510 1	51230 1	35501 0	50044 1	50045 0	50046 0
34,7620	33232 1	51220 0	20017 0	33562 0	02173 0	C: 71631 0	37630 0	02127 1
34,7630	C: 71634 0	37630 0	02060 0	02256 1	04000 0	I: 76576 1	C: 20346 1	C: 33002 0
34,7640	I: 76776 0	C: 30715 1	I: 77576 0	11220 1	07621 0	04000 0	I: 75175 0	I: 76776 0
34,7650	C: 01115 0	C: 31000 0	I: 76776 0	C: 30613 0	I: 76776 0	C: 30634 0	I: 77576 0	05654 0
34,7660	C: 30331 0	06237 1	11230 0	07613 1	05654 0	C: 24721 0	05654 0	C: 24751 1
34,7670	C: 67222 1	C: 51710 0	C: 00000 1	C: 00000 1	C: 15327 0	C: 37747 1	C: 00000 1	C: 00000 1
34,7700	C: 00000 1	C: 00000 1	C: 20000 0	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1
34,7710	C: 15327 0	C: 37747 1	C: 00000 1	C: 00000 1	C: 10555 0	C: 26067 1	C: 20000 0	C: 00000 1
34,7720	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 00000 1	C: 57777 1	C: 77777 0
34,7730	C: 00666 1	C: 00130 0	C: 03711 0	C: 33265 0	C: 24365 1	C: 30244 0	C: 24000 1	C: 00000 1
34,7740	C: 01100 1	C: 00021 1	C: 01111 1	C: 00000 1	C: 00406 0	C: 36355 1	C: 00002 0	C: 12725 1
34,7750	C: 03146 1	C: 14632 0	C: 00051 0	C: 33163 0	I: 76576 1	C: 20271 1	I: 55176 1	C: 01315 1
34,7760	I: 45176 0	C: 05174 0	I: 57175 0	I: 41166 0	C: 01315 1	C: 31733 1	C: 33177 0	I: 40576 1
34,7770	07770 0	07771 1	CKSM 60502 0	@	@	@	@	@

THE ASSEMBLY WAS GOOD; MANUFACTURABLE BINARY RECORDS STORED ON LYNNWARD.